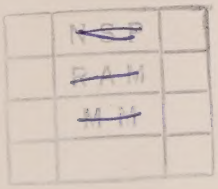
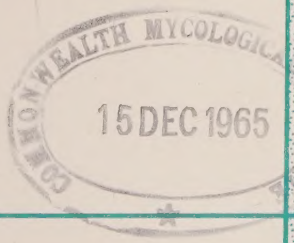
UGANDA
GOVERNMENT

Annual Report of the AGRICULTURE DEPARTMENT





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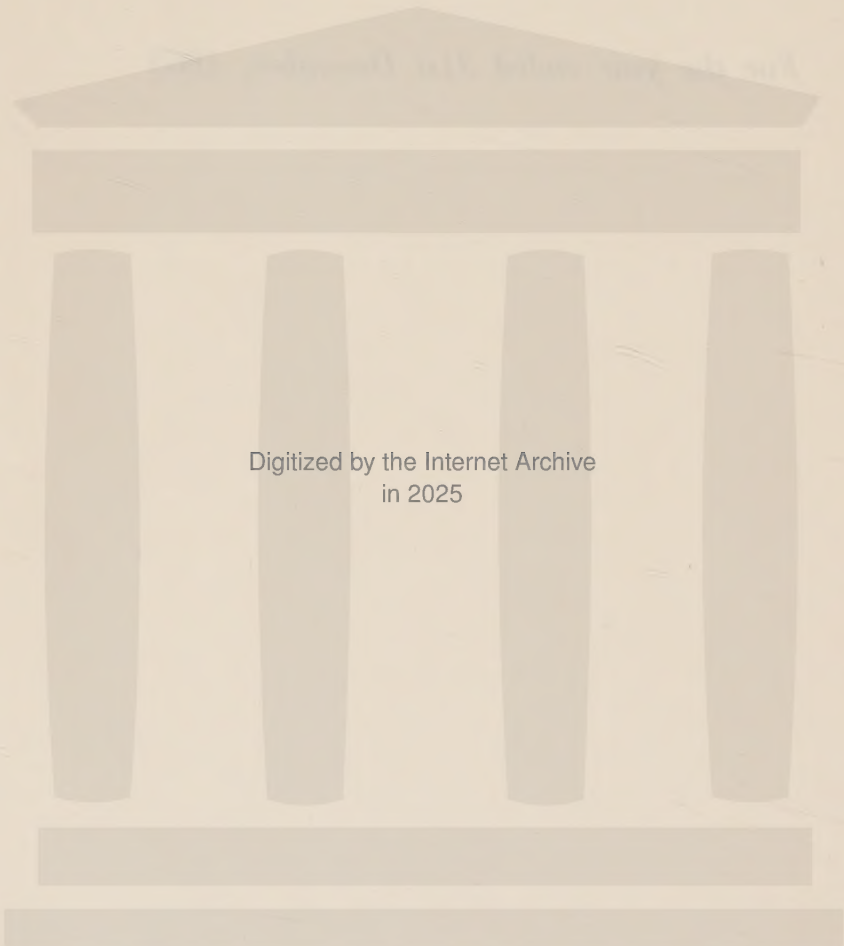
Annual Report of the
AGRICULTURE DEPARTMENT

For the year ended 31st December, 1963



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FOREWORD

I am most pleased to write a foreword to the 1963 Annual Report of the Department of Agriculture, which I commend to all who have the future prosperity of Uganda at heart. The year 1963 will be remembered as a year of really significant achievements in the field of agriculture and animal husbandry and particularly as the year of mechanisation. In the past one of the main factors limiting production of food and cash crops has been the almost total reliance by primary producers on hand tools. Despite a large increase in the use of draught-oxen in recent years in the north, and particularly in the east, it is still true to say that the major portion of the land cultivated each year is cultivated by hand. With this in mind, Government decided that a bold effort should be made to diminish this reliance on out-dated methods of tillage, and consequently ordered large numbers of tractors, with the necessary implements, to help farmers to produce more and better crops both from increased acreages under production and by achieving higher yields. By the end of the year, 100 tractors had been imported into the country, and a further 250 had been ordered.

To utilise this machinery to full advantage, Government also introduced the concept of group farming during the year, and a start was made in three areas on mechanical cultivation, planting, weeding and spraying of cotton on large-scale Group Farms. The report describes this dramatic development, which is in effect the beginning of a significant revolution in production methods in Uganda, based on Co-operative credit and efficient tractor utilisation; I am sure these developments will have a profound influence on the mental attitude of the entire population towards farming as a mode of life. With such progress towards mechanisation, I am glad to say that a 'crash' training programme was initiated for departmental tractor drivers and mechanics, and training facilities have been extended to drivers of privately-owned tractors.

I have encouraged and note with interest the steps taken to stimulate participation by local cultivators in agricultural industries. I would like to see more and more outgrowers working co-operatively with such industries as the sugar, tobacco and tea plantations.

1963 also witnessed the building of further District Farm Institutes and the inception at the Agricultural Colleges of training for agricultural diplomates. These Colleges will go far to overcome the lack of qualified Ugandan staff to serve the country within the Department; their establishment has been an important landmark in the evolution of Uganda's agricultural industry. It is heartening to note that the Farm Schools under my colleague, the Minister of Education, are now inter-denominational.

Once again this Report contains some very interesting reading in the section concerned with investigations. The public in general knows all too little of this aspect of the Department's activities, upon which extension advice to farmers is based.

To marshall the efforts of extension workers themselves to the best advantage, extension courses for all field staff were undertaken. Extension efforts were also considerably aided by Government's greatly increased provision of funds for loans and subsidies.

In these, and in many other ways outlined in this Report, Government is aiding the primary producer to increase production thus creating more wealth and a higher standard of living for the people of Uganda. The ultimate success of these programmes, however, rests with the people themselves.

Finally I wish to convey my appreciation to the Commissioner for Agriculture and his staff for the strenuous work they have done during the year. Likewise I would express my appreciation to the farmers and the public at large for the spirit of co-operation exhibited. I am convinced our achievements would not have been possible without this combination of hard work on the part of the staff and co-operation from the public.

M. M. NGOBI,
Minister of Agriculture and Co-operatives.

ENTEBBE,
16TH APRIL, 1965.

UGANDA GOVERNMENT

DEPARTMENT OF AGRICULTURE

Annual Report

For the Year ended 31st December, 1963

I. INTRODUCTION

(a) Policy

THE policy of the Department remains similar to that of previous years and can be stated as:—

(i) to ensure an adequate food supply for the people of the country;

(ii) to conserve soil, water and other natural resources;

(iii) to enhance the natural fertility of the land by the introduction of improved types of farm animals for integration where appropriate into the farming system, to encourage mixed farming and the private ownership of land;

(iv) to increase production and improve the quality of cash crops to enable the people to enjoy a better standard of living and increase the revenue of the country.

2. The Department was able to offer increased assistance to progressive and other farmers by making larger sums of money available for the Agricultural Credit and Subsidy Schemes, and farmers were eager to make use of the advantages offered. The application of this policy was further assisted by an improvement in extension techniques due to the mounting of an Extension Methods Course which was attended by a large proportion of the extension staff. More District Farm Institutes were built and used during the year, and larger numbers of farmers and Agricultural and Co-operative Development Department staff received courses of instruction with beneficial results to the country's economic output. The decision was made not to concentrate wholly on progressive farmers and now as far as possible all farmers receive their share of attention from the field staff.

(b) General Review

3. 1963 was the first complete year of independence for Uganda. It was a year of great changes in the agricultural field and saw the implementation of the decision to import a large number of tractors to increase productivity.

It also gave a larger share to the producers in the processing and marketing of their crops by Co-operative Unions and Associations of Growers.

4. The weather pattern in many places was irregular and unpredictable, with higher than average rainfall. Some interference was experienced in the harvesting of cotton and drying of coffee but production of food crops was generally favoured.

5. There were small shortages of food in several places, particularly in Karamoja and the Teso/Karamoja border area; these were easily adjusted from local resources. Apart from this, food was plentiful.

6. Cotton lint production from the 1962/63 crop amounted to 358,288 bales, excluding 160 bales from research stations. The acreage planted was 1,803,459 acres. It is estimated that the total return to growers from the sale of this crop was £12,416,414.

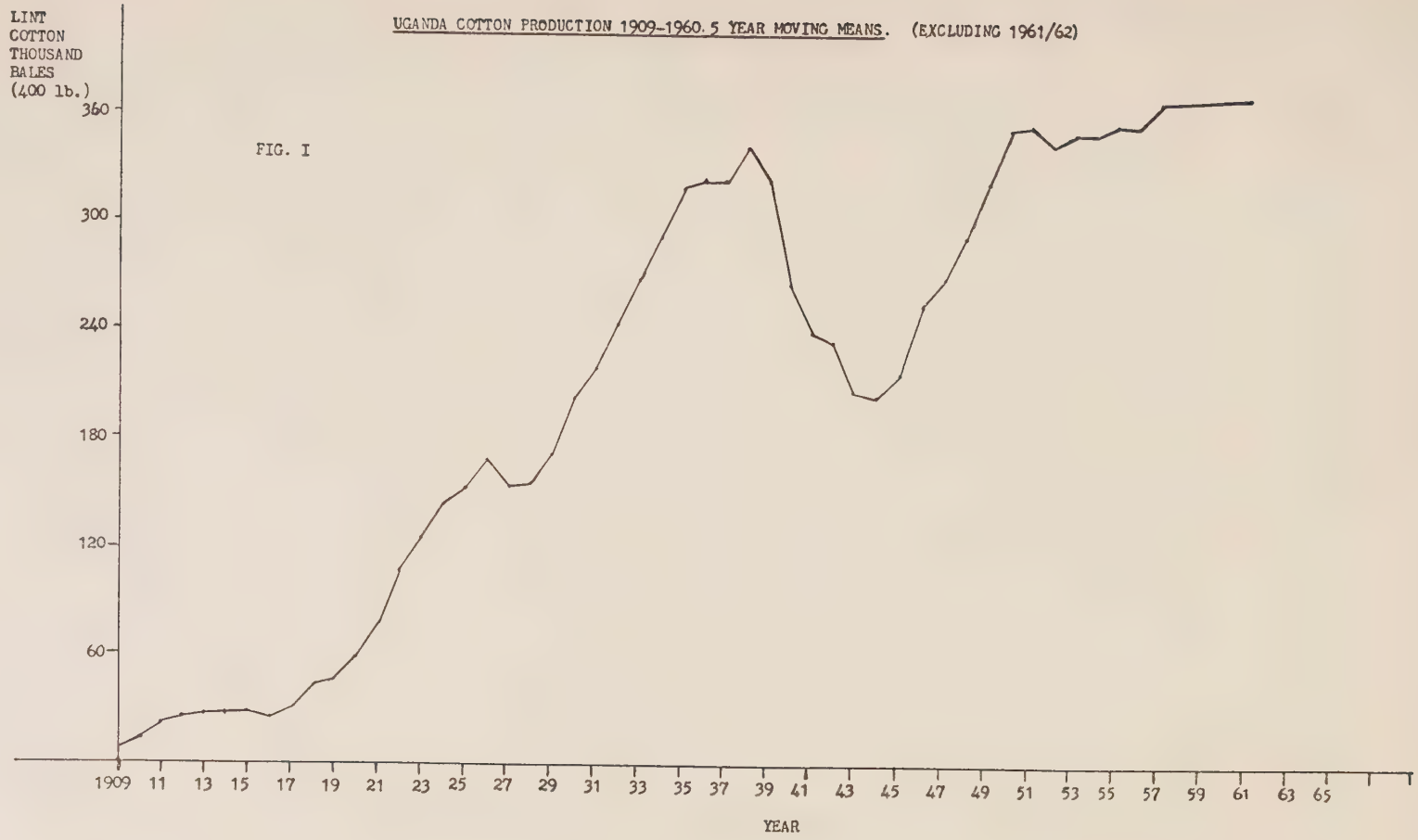
7. The 1963/64 cotton crop acreage is 2,014,242 acres with an estimated production of 375,000 bales which will give a return to growers of £11,850,000.

8. The total value of the coffee crop to growers of all classes was over £11 million, compared with a little over £14½ million in 1962. The Robusta crop broke all records, and totalled 149,913 tons, making Uganda the fourth largest producer of coffee in the world. The increase was due to favourable weather conditions and improved husbandry practices.

It has often been asserted in the past that agricultural production in Uganda has remained static for many years, and it is frequently stated that the cotton crop has not increased since 1937/38 when a record crop of 418,000 bales was exported. Nothing could be further from the truth. Fig. 1 shows the steady increase in the size of the annual cotton crop in Uganda since 1909; production is averaged over five years to minimise fluctuation in the crop due to weather. This increase in cotton production has taken place *in addition to* the enormous increase in the coffee crop since 1935 depicted in Fig. 2. Much of this coffee has been produced in Buganda and has replaced the cotton previously grown there, so that it can be seen that to compensate for this loss of cotton in Buganda, production has increased very considerably in the Eastern and Northern Regions.

9. The tobacco crop in 1963 produced an estimated cash return to growers of £382,916 compared with £262,610 in 1962. Over three million pounds of cured leaf were produced. The estimated requirements for the market in 1964 are around six million pounds of flue- and fire-cured leaf.

10. Sugar production was estimated at 122,044 tons compared with 104,310 tons in 1962. The total acreage planted by outgrowers on the two main estates was approximately 4,880, compared with a total of 1,765 acres in 1962. On the estates the mature and immature cane acreages total 17,125 and 21,335 respectively, and the ex-works value of sugar produced was £5,451,496.


LINT
COTTON
THOUSAND
BALES
(400 lb.)
UGANDA COTTON PRODUCTION 1909-1960. 5 YEAR MOVING MEANS. (EXCLUDING 1961/62)
FIG. I
360
300
240
180
120
60
1909 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65
YEAR

17. The scope for the control of Bollworms and *Lygus* in cotton was considerably increased by the free issue of about 475,000 tins of insecticide, and the purchase by farmers on subsidy of approximately 26,000 plantector pumps. Free spraying of coffee by the Department against *Antestia* in the Western Region and *Antestia* and lace-bug in Bugisu continued. Some 5,807 and 5,054 acres respectively were covered, compared with 7,741 and 7,700 acres in 1962. Less money was available for this work in 1963, and disturbances in parts of Toro led to abandonment of much of the work in that Kingdom; these factors accounted for the decrease in acreages sprayed.

(c) Liaison with Local Governments

18. Over the country as a whole there was close and cordial liaison with officers of Kingdom, District and Territorial Governments in all agricultural matters. However, there is a tendency, now that divisional chiefs' duties have become more specialised, for them to give rather less consideration than has been customary to the agricultural aspect of their work.

II. WEATHER

19. The weather showed many variations from the standard pattern and was generally unseasonable and irregular. The early rains started earlier than usual, except in the east where March was hot and dry. In April and May rainfall was heavy over the whole country. In the north there was only a slight mid-year break in the rains and rainfall was normal for July but August and September were abnormally dry. Elsewhere, dry conditions and subnormal rainfall continued from the end of June to nearly the end of October. For the remainder of the year very heavy rains fell over almost the whole country, causing floods in the east. Conditions became normal from the middle of December. In general, rainfall was above the average in spite of the long dry spell in the middle of the year. The amount of damage of crops from local hailstorms was not excessive.

III. FOOD CROPS AND FOOD SUPPLIES

20. Although the weather caused some difficulties, especially in the Eastern Region, where the groundnut crop was severely affected, over the country as a whole production of food crops was adequate to meet all requirements, with sufficient reserves to last until the next harvest. In the Northern Region a large surplus of finger millet was available for export to markets in the south and east. This is now an established area for the production of surplus grain. Similarly, in the Western Region, the recent increase in the estimated area of plantains is producing a surplus of matoke in that area. The estimated acreage of food crops shows a reduction in the Eastern Region, but a large increase in the Northern Region. There was a small reduction in Buganda, and the Western Region showed a healthy increase in estimated area.

IV. ECONOMIC CROPS

(a) Cotton

21. This report deals with the marketing of the 1962/63 crop, and the production of the 1963/64 crop.

22. (i) *1962/63 Season.*

TABLE A—COTTON PRODUCTION

1953/54 TO 1963/64

Season	Estimated acreage	Bales of lint (400 lb.)	Average yields of seed cotton per acre	Average price to growers for 100 lb. seed cotton
			lb.	*Shs. cts.*
1953/54 ..	1,611,223	397,594	325	49 40
1954/55 ..	1,738,821	299,831	227	58 81
1955/56 ..	1,585,500	363,449	305	52 11
1956/57 ..	1,568,539	372,185	313	53 34
1957/58 ..	1,617,013	350,693	288	54 90
1958/59 ..	2,014,020	400,682	263	44 20
1959/60 ..	1,564,744	360,260	300	44 81
1960/61 ..	1,516,155	371,022	318	52 23
1961/62 ..	2,072,121	181,137	113	52 06
1962/63 ..	1,803,459	358,288	257	53 56
1963/64 ..	2,014,242	—	—	—

Early in the 1962/63 cotton season a campaign was started to encourage farmers to increase their acreage and obtain higher yields by early planting, correct spacing and spraying. The campaign utilized press releases, public meetings, radio talks, pamphlets, posters and individual visits. Following the unfortunate crop year of 1961 planting was slow to start. The May-planted crop in Buganda suffered slightly from the dry weather in June–July, which also delayed further plantings in the kingdom until nearly the end of July. Throughout the main growing areas, however, after the dry spell of June and July, planting activity greatly increased and a good acreage resulted. In all zones the percentages of the acreage planted late was higher than in recent years. Fortunately, growing conditions in the latter half of the year favoured this late planted crop, and although yields were not as high as the early planting, nevertheless a fair crop resulted. Marketing started in November. The prices paid for clean raw cotton were 57 and 56 cents per pound for B.P.52 and S.47 growths respectively. For stained raw cotton the price was 20 cents per pound in all zones except West Nile where it was 23 cents. The return to growers was estimated to be £12,416,414.

(ii) *1963/64 Season*

23. In 1963 there was again a big effort to encourage early planting, correct spacing and proper spraying of cotton. The response in all zones was good but the mid-year dry season, which was much longer than normal, interfered with the progress of planting. However, favourable weather conditions prevailed in the latter part of the year and a total of 2,014,242 acres were planted of

which about 18 per cent was planted in August and September. Marketing started in November and the prices paid for clean raw cotton were 51 and 50 cents per pound for B.P.52 and S.47 growths respectively, and for stained raw cotton the price was 28 cents per pound, except in West Nile where the price was 29 cents per pound. The estimated total production is 375,000 bales, and it is calculated that the return to growers will be above £11 million.

24. Under the Cotton (Amendment) Act, 1962, the Minister of Agriculture and Co-operatives was given powers to allocate to Co-operative ginneries that proportion of the crop which was grown by Co-operative members, subject to the capacity of the Co-operative ginneries being adequate for this quantity. This resulted in the following percentages of the total purchases of seed cotton being allocated to Co-operative ginneries during the last two seasons:—

Zone	Percentage	
	1962/63	1963/64
Mengo	15	25
Mubende	15	35
Busoga	35	50
Mbale	41	55
Lango	20	60
Bunyoro	50	78
E. Acholi	—	60
W. Acholi	—	65
Teso	—	35
Masaka	—	65

The balance of the crop in each zone was placed on a normal pool basis between the private ginners.

(iii) *Multiplication of New Strains of Cotton*

25. Production and distribution of new strains followed the normal pattern. The organisation of the B.P.52 multiplication scheme will be taken over by the Chief Agricultural Officer, Buganda on 1st January, 1964. Albar was introduced to Teso Segregated Area I for the first time in 1963.

(iv) *Cotton Seed Dressing*

26. The Special Development Scheme was responsible for the maintenance and repair of equipment and buildings at all cotton seed dressing stations. The duties of the Cotton Seed Dressing Officer are now decentralised and Regional Agricultural Officers have the responsibility for operational finance and provisioning of the stations. All stations except Kasese were equipped with the new automatic chemical dispensing and dust-extracting equipment. In addition, the Lint Marketing Board agreed to finance the conversion of several stations from diesel to electric operation. The conversion of all stations accessible to the main electricity supply was completed during the year. A total of over 25,000 tons of seed were dressed, and the programme was completed by the end of August.

(v) *Cotton Spraying*

27. The spraying of insecticide by farmers against Spiny Bollworm and *Lygus* increased enormously, and it is estimated that about 400,000 acres were protected. The insecticide was issued free by Government.

(vi) *Amalgamation of Cotton Zones*

28. The description of the Toro Cotton Zone has been amended to include those counties and gombololas of Toro, Kigezi and Ankole adjacent to the National Park and Lakes George and Edward.

(b) Coffee

(i) *Bugisu Arabica 1962/63*

29. The main marketing period for this crop is from October to January inclusive. It was anticipated that this season's crop would be light after the heavy yield of the previous year. The result was as forecast. The final figures given are not completely reliable due to the entry into the buying field by the Bugisu Coffee Marketing Association. The Association's buying licence was withdrawn on the 6th March after the purchase of an estimated 1,000 tons. The Bugisu Growers Co-operative Union purchased 3,429 tons of parchment and about 73 tons of "buni". The average price realised by the grower during the period was approximately 1/50 per lb. of parchment.

(ii) *Bugisu Arabica 1963/64*

30. The season started with heavy flowering and a good crop was set. In an effort to improve quality, instructions to growers on picking and processing were distributed by pamphlets and posters. This measure was largely successful, and there was an improvement in quality. The crop proved to be a record and totalled 9,516 tons of parchment. There was an additional 474 tons of "buni".

During the year four new Central Pulperies were built, two of which operated, and three more were rehabilitated. It is planned to build three more to bring the number to ten in Bugisu and Sebei. The pulperies unfortunately did very little work as the farmers were not attracted by the price for cherry of 20 to 35 cents, when many are in a position to pulp and sell parchment for Shs. 1/60 per lb.

(iii) *Bugisu Coffee Improvement Scheme*

31. The Coffee Replacement Scheme was put into effect and a total of 171,325 seedlings were distributed to growers from Busalani Central Nursery. Counting of established coffee seedlings was carried out in November and growers were paid 60 cents for each seedling established as an inducement to uproot uneconomic trees. Under this scheme 450,000 seedlings were raised for transplanting in 1964, of the varieties K7, SL14, SL28 and SL34. Private nurseries, for replacement only, were continued in all areas by licensed growers.

Spraying against *Antestia* and lace bug was carried out, and 5,054 acres were covered, the average cost being Shs. 33/90 per acre. Coffee Berry Disease is still spreading in Sebei and control is being exercised by spraying. Plans for a spraying programme are being drawn up.

The following table shows production figures over 11 years:—

TABLE B—BUGISU ARABICA COFFEE

Season	Bugisu parchment production	Estimated value to growers
	Tons	£
1953–54	3,122	1,231,791
1954–55	6,170	2,015,662
1955–56	4,098	1,349,576
1956–57	5,175	1,420,353
1957–58	4,805	1,198,602
1958–59	4,912	764,072
1959–60	5,791	1,013,727
1960–61	5,149	927,627
1961–62	9,704	1,935,827
1962–63	* 3,430	585,100
1963–64	9,526	1,855,294

* Does not include purchases by the Bugisu Coffee Marketing Association, estimated at 1,000 tons.

(iv) *Coffee other than Bugisu Arabica*

32. The total production of coffee during the calendar year, excluding Bugisu Arabica amounted to 149,913 tons of clean Robusta coffee and 2,098 tons of Arabica coffee produced in Buganda and the Western and Northern regions. The total value of the crop to growers was £16,326,786.

Prices obtained during the year were as follows:—

TABLE C—ROBUSTA PRICES—CENTS PER POUND

Date	Dry Cherry	Rough Hulled	Parch-ment
14.6.62 to 31.3.63 ..	48	90	82
1.4.63 to 10.11.63 ..	50	94	85
11.11.63 to 22.2.64 ..	45	85	78

ARABICA PRICES—SHS/CTS PER POUND

		Shs. cts.	*Shs. cts.*
1962 ..	74	1 64	1 70
1963 ..	74	1 64	1 70

33. In Buganda, a bigger crop than ever before was produced, estimated at 143,096 tons of Robusta and 2,589 tons of Arabica Kiboko.

34. The estimated value of the crop produced in Buganda was £15,751,700. Quality was not high, due to the very large crop and the difficulty of drying and storage, coupled with the competition among buyers to obtain as large a proportion of the crop as possible. There was no price incentive to improve standards but nevertheless two thousand coffee drying trays were sold to farmers during the year under the Subsidy Scheme.

35. The new Coffee Act came into force on 1st April, to make better provision for the marketing, processing and export of coffee. The Act requires that all dry-processed coffee produced in the country has to be purchased by the Coffee Marketing Board; if in the opinion of the board such coffee conforms to the grades established by the board it is fit for export. The Act was amended on 10th July to the effect that all coffee exported from Uganda must be exported as clean coffee.

36. The marketing of Bugisu Arabica coffee is a function of the Bugisu Growers Co-operative Union only. In all other areas Ugandan and non-Ugandan estates, whether individual or associations of growers, must market their dry-processed coffee through the Coffee Marketing Board. Wet-processed coffee may be sold by any producer (except in Bugisu) for export under his own mark or to exporters in Uganda. Arrangements can also be made with the Coffee Marketing Board to sell such wet-processed coffee, and it can also be sold to primary buyers, or processing factories. The ordinary coffee grower sells to the primary buyer at the established markets, to processing factories wet or dry or to Co-operative Societies' buying centres.

37. There were three Ugandan estates processing and 90 non-Ugandan estates with processing factories. The processing of non-estate coffee was handled by 60 wet and dry-processing factories, of which 36 were operated by Ugandan Associations of Growers, and eight by co-operative unions in 1962; out of a total of 148 factories, 47 were operated by Ugandan Associations of Growers and eight by Co-operative Unions.

(v) *Congo and Rwanda Coffee*

38. Consortia at Bunagana and Katuma in Kigezi bought 893 tons of coffee (mainly Arabica) and at Isango and Bugandi in Toro 3,209 tons were purchased. These consortia were closed before the end of the year by the Ministry after consultation with the Regional Commissioner of Customs and Excise.

(c) Tobacco

(i) *Flue-cured*

39. Production of this type of leaf is confined to West Nile, Acholi, Lango and Kigezi districts. Producers can be divided into four categories:—

(*a*) master-growers who grow and cure their own crop under contract to the East African Tobacco Company;

(*b*) independent growers who grow, cure and sell their own crop under their own arrangements;

(*c*) Co-operative Societies growing and curing tobacco, and also buying, grading and selling cured leaf; and

(*d*) green-leaf growers who grow to sell green-leaf to master-growers and tobacco companies.

40. In West Nile land preparation was better than ever before. The change-over from being mainly green-leaf growers to master-growers continued. Master-growers and Co-operative Societies produced 88 per cent of the flue-cured crop of 1,142,018 lb. Two crops per year only are now grown instead of three, the yield of the third crop being uneconomic. Both crops were unfortunately

heavily infected with leaf curl, but the production was 19 per cent higher than that of 1962. The supply of wood fuel is becoming a problem in Terego County and further expansion was diverted to east Vurra where firewood is plentiful. The object is that eucalyptus plantations should be established by all master-growers.

41. In Acholi, the first crop grew well but the late crop was affected by the abnormally wet weather. Master-growers were responsible for producing 248,786 lb. of cured-leaf out of a total of 255,446 lb., the balance of 6,680 lb. being produced by the independent growers.

42. In Lango 14 acres were cultivated by the farming group of Ngai which is made up of seven farmers. They produced 2,396 lb. of cured-leaf, valued at £312. This is the only tobacco grown in the district.

43. In Kigezi the flue-cured industry is centred at Bugangari, the buying and curing being done by the Kigezi Development Company. The Company supplies seed, makes and maintains seed beds, and hires out a tractor cultivating unit for those growers who wish to use it. They also collect green leaf from distant markets and do the curing and selling. Growers are limited to Kambuga and Bugangari Gombololas. Green leaf grades and prices are:—

Grade		*Price*
Grade 1	...	12 cents per pound.
Grade 2	...	8 cents per pound.
Grade 3	...	3 cents per pound.

The late sown crop of 1962 produced 100,000 lb. of cured-leaf and the early 1963 crop was 70,934 lb. The return to green-leaf growers was £5,011 approximately. 533 acres were harvested during 1963, made up of the 1962 late sown and the 1963 early sown crops.

(ii) *Fire-cured*

44. (*a*) *West Nile.*—Seed beds were prepared in February and planting out in the field was almost finished by the end of April. Leaf curl, a disease normally confined to the flue-cured crop, did appreciable damage. Harvesting was poorly performed, the growers tending to take too much leaf at a time resulting in waste and low grades. Most of the crop was sold as grades 2 and 3, and the final production totalled 802,377 lb. This was only 75 per cent of the target. Grade/prices per pound were as follows:—

Grade		*Price/lb.*
Super Grade	...	1/75
Grade 1 ...	...	1/50
Grade 2 ...	...	1/10
Grade 3 ...	...	–/75

Comparative statistics for recent years are:—

	1961	1962	1963
Total cured leaf (lb.) ..	527,047	977,819	802,377
Value to growers ..	£26,900	£53,885	£40,703
Average price per pound ..	*Shs.*1/02	*Shs.*1/10	*Shs.*1/01

45. (*b*) *Bunyoro.*—Bunyoro seed was issued early in January and seed beds were sown by the end of April, and approximately 6,500 acres were planted. The final yield was lowered due to the extended mid-year dry season, and only 2,117,002 lb. of cured-leaf out of an estimate of 2,750,000 lb. was actually purchased. Hail destroyed 400 acres. Buying commenced on 23rd September and was completed by 22nd November. The crop was purchased by the Bunyoro Growers Co-operative Union and Messrs. Edwards Goodwin. Rejected leaf weighing 58,648 lb. was purchased at 35 cents per lb. by the International Leaf Company for export. Comparative statistics for recent years are:—

	1961	1962	1963
Total cured-leaf (lb.) ..	1,309,513	2,175,832	2,117,002 (58,648 lb. reject).
Value to grower	£62,791	£117,495	£113,259 (£1,026)
Average price per pound ..	*Shs.*0/95	*Shs.*1/08	*Shs.*1/07

46. (*c*) *Mubende.*—In Mubende District, 1,493 registered growers were obtained and a total of 305 acres was planted out. This took place at the time of the mid-year dry spell and resulted in poor growth in many localities. Marketing was carried out by the Mubende District Growers Co-operative Union and buying commenced on 11th October and was completed on 14th November. The comparative figures of the 1962 and 1963 crop are give below:—

	1962	1963
Total cured-leaf (lb.)	83,053	75,828
Value to grower	£4,203	£3,880
Average price per pound	*Shs.*1/01	*Shs.*1/02
Average return per grower	*Shs.*69/41	*Shs.*52/14

The 16-year average acreage for this crop is 993.

Table D.—Flue-cured Tobacco Production

	West Nile			Acholi			Lango			Kigezi		
	1961	1962	1963	1961	1962	1963	1961	1962	1963	1961	1962	1963
Acreage	1,803	970	1,564	894	540	587	13	14	14	641	628	533
Production (cured-leaf) in lb. ..	1,094,508	932,016	1,142,018	394,624	311,496	255,446	3,901	2,708	2,396	207,100	150,000	179,934
Total price to growers ..	£ 58,476*	£ 71,166	£ 34,558	£ 32,210	£ 45,665	£ 31,583	£ 562	£ 341	£ 312	£ 4,380	£ 4,104	£ 5,011
	Shs. cts.	*Shs. cts.*	*Shs. cts.*	*Shs. cts.*	*Shs. cts.*	*Shs. cts.*	*Shs. cts.*	*Shs. cts.*	*Shs. cts.*	*Shs. cts.*	*Shs. cts.*	*Shs. cts.*
Average price per pound ..	2 62	2 66	2 57	1 72	3 90	2 46	2 88	2 52	2 60	For green leaf 0 06	0 06	0 06

* Sales of cured-leaf by master growers and green leaf combined.

(d) Tea

47. The tea crop is now the third most important economic crop. It has a current value of around £2½ million and is showing a steady annual increase. Mainly an export crop, it also meets a proportion of the local market requirements, while it is a large-scale employer of labour and utilises land which would otherwise produce only indifferent crops or grazing. The total of made tea produced in the last three years is as follows: —

TABLE E.—TEA PRODUCTION

	1961	1962	1963
	lb.	*lb.*	*lb.*
Made Tea ..	11,278,158	13,876,370	13,601,280 Value £2,290,000
			lb.
Exports ..	—	—	12,107,200 Value £2,040,672

48. The number of outgrowers willing to grow leaf for sale to local factories continued to increase; the provision of tea stumps was the limiting factor to expansion in this direction, combined with finance to see the crop through the development stages. The principal areas of development for outgrowers are in Toro, Ankole, Kigezi, Bunyoro and Buganda, and trials are being undertaken in Sebei and the West Nile District.

49. In the Western Region a total of 609 outgrowers were cultivating 1,606 acres of tea.

50. The Inter-Church Aid School-Leavers Resettlement Scheme in Buhweju, Ankole, had about 30 farmers cultivating tea in the early stages. About half a million seeds were planted on the scheme early in the year, and many thousands of tea stumps were received and planted by settlers.

(e) Sugar

51. Sugar production continued to rise and the two main estates are now co-operating with outgrowers to implement their output. The cane acreage of the two main estates totals 38,460 acres with 4,880 acres cultivated by outgrowers. Production of mill white sugar continues to rise. In 1961 the output was 95,500 tons and in 1962 and 1963 it was 104,310 and 122,044 tons respectively. Exports of sugar to Kenya in 1963 were 40,273 tons, valued at £1,836,309, and 5,030 tons valued at £291,656 were sent overseas. The amount exported to Kenya in 1962 was 35,840 tons. The conversion of by-products into industrial spirit and ethyl-alcohol is a process of increasing economic importance.

(f) Cocoa

52. Plantings continued throughout the year in Buganda and the Eastern and Western regions to the extent of 156 acres, making a total of 409 acres in all, 290 acres of which are in Buganda. Until a large enough crop is available for processing and export, pods are bought from farmers and used for seed, or destroyed. A fermentary was being built at Kituza.

Many of the first plantings fruited and podded heavily. Farmers growing the crop showed a keen interest in its development and the standard of cultivation was high. There are four trial sites at Kyabazala, Namyoya, Mukono and Mwera. It was reported that at some sites monkeys are causing damage.

(g) Maize

53. The total acreage declined by 24,000 to an estimated 392,000. Exports were 46,526 bags (200 lb. each), mainly to Somalia, and 8,238 bags and 122,350 bags to Kenya and Tanganyika respectively. The decline in acreage was mainly due to lack of markets for the crop.

54. Imports of maize-meal from Kenya exceeded the value of exports to Kenya and Tanganyika by about £15,000. Total value of all exports during the year was over £291,000. A large proportion of the crop in the Northern and Western regions, and to a lesser extent in Buganda, is eaten in the green state. The price of maize seed varies from 7 cents to 18 cents per pound in the principal markets.

(h) Minor Crops

55. In Buganda the Vanilla Outgrowers Scheme based on the Salama Estate of Agricultural Enterprises is now in its third year. There are now 13 members of the scheme. The number of vines remains at 736, the same as last year, since the expected supply of cuttings was not forthcoming. The old vines continue to grow well, flowering and podding being seen on many vines. At around Shs. 40 per pound (based on processed export price), there is every incentive to increase output for export, which totalled 1,900 lb. in 1963. Other exports of minor crops included chillies, which totalled 95,000 lb. with a value of £51,000 and 65 tons of soya beans worth about £32 per ton.

56. It is hoped that Co-operative Societies will shortly be able to interest themselves in the purchase of small local surpluses of such crops as beans, peas, millet and maize, dried cassava, etc., and eventually engage in central marketing through the unions. A farmers' club at Butambala is producing ginger on a large scale and had about 50 tons for sale. Experiments are being conducted on drying to enable the crop to be exported. Interest in ginger, pepper, cardamoms and turmeric continued to increase, and it is intended that production should be increased to cut out imports and eventually to export abroad.

57. Exports of sisal amounted to 343 tons, valued at £44,229, compared with 454 tons last year. This has grown and processed at the one estate in the country, near Masindi Port in Bunyoro.

(i) Oil Seeds

58. Output of seed from the 1962/63 cotton crop amounted to over 136,000 tons. Of this total 24,000 tons were reserved for seed and 112,659 tons sold to local oil-mills and exporters. The total sum realised from this sale was approximately £2,476,243, an average price of Shs. 439 per ton.

59. The acreage of groundnuts planted was 586,689, compared with 615,700 in 1962. Of the total crop 3,712 tons were sold, mainly overseas, for £192,624. The groundnut grading scheme at Nsinze in Busoga worked for another year under Co-operative Union management, and 164 tons of shelled nuts were

graded to produce a larger profit than would otherwise have been obtained. This was quite an achievement since the quality of groundnuts was very low due to poor growing conditions. The trials will continue and prospects are good.

60. Castor seed production continued at a low level. There was a steady demand, and more could be produced and exported if the price were more attractive. The price valued from 20 to 35 cents per pound. Exports totalled 2,505 tons and the average price was £41 per ton. Production of sunflower seed, mainly from West Nile, was 87 tons with an export price of £42 per ton. Also 893 tons of sesame were exported at £68 per ton.

V. AGRICULTURAL DEVELOPMENT AND EXTENSION WORK

(a) Soil Conservation

61. Progress in the extension and maintenance of this most important service continues. Owing to political changes many chiefs are not so active as in the past in co-operating with extension staff to effect improvements in agricultural practices. In many cases, however, chiefs continued to play their customary part in agricultural matters and where this is so results are manifest. For example, soil conservation measures benefit tremendously from communal effort, which is more highly developed in Buganda than elsewhere: 236 miles of contour bunds were constructed there, and stabilized by planting paspalum grass during the year. The Department is in a better position than ever before to stress this work through the growing number of classes at District Farm Institutes. Progressive farmers set an example to others and the amount of soil conservation work, mulching and manuring of permanent crops on these farms has never been at a higher level. Enclosures and pride in land ownership contribute towards care of the soil and these measures continued to be encouraged.

62. The annual agricultural competitions were held as usual throughout the country, in most places with excellent results.

63. During the year 250 acres, at Suam in Sebei District, were terraced using a D6 Tractor and No. 22 Grader which provided useful experience in the economic possibilities of the extension of such work in hilly, heavily-populated areas, where there is danger of soil erosion.

(b) Progressive Farmers

64. Departmental policy aims at developing a class of farmer who can assimilate and utilise the advice and help offered by the Department, and who desires to improve his standard of farming. These progressive farmers form the main focus of agricultural development and become examples of good husbandry to a wide circle of neighbours. District staff do not, however, confine their activities to progressive farmers and every individual requiring it has the benefit of departmental advice through the medium of mass-extension techniques.

65. Agricultural credit in the form of loans to progressive farmers under the Progressive Farmers Loan Scheme from the Uganda Credit and Savings Bank, continued throughout the year. During the period July, 1962 to November,

1963, a total of 1,534 loans were approved, involving the sum of £161,743, of which £136,511 was issued to borrowers. Unfortunately, due mainly to staff shortages, the standard of repayment left much to be desired. Through the Co-operative Credit Scheme 236 societies lent money to 7,300 borrowers, the great majority of whom were farmers, to the extent of £94,206. This short-term credit scheme served an extremely useful purpose, and was most successful.

66. The Agricultural Subsidy Scheme is a means whereby Government assists farmers with their equipment purchases to enable them to extend and improve their farms. Emphasis was placed on subsidising articles required for ox-cultivation and row-cropping, grass and legume seed mixtures, wire for paddocking and enclosure, and coffee-drying trays. During the 1962/63 financial year, £62,274 were spent on equipment subsidies to farmers compared with £14,639 in the previous year.

(c) Animal Husbandry and Pasture Work

67. The integration of livestock into a sound system of mixed farming in appropriate areas continued to be a major item of departmental policy. Farmers improved the grazing capacity of their pastures by the removal of unpalatable species of grass, by restrictions on burning, by fencing and rotational grazing and by the application of manure. In addition, some farmers adopted the practice of establishing leys on resting land with grass and legume seed mixtures purchased from Serere. Purchase under the subsidy scheme has enabled much of this improvement to be carried out. In many cases purchases of equipment were double those of the previous year; for example, 9,648 rolls of barbed wire and 6,539 imported fencing posts were purchased, while subsidy was paid on the erection of 146 cattle kraals, the principal means used for the collection of farmyard manure.

68. The sale of grass seed and grass and legume seed mixtures was taken over by Messrs. Dalgety's (East Africa) Ltd., at the end of the year. Serere Experiment Station continued to be the main producer of much of the grass and legume seed for Dalgety's. The import and breeding of exotic dairy stock continued to expand in volume, particularly in Buganda. The advantages of improved stock are well published over a widening area and the practical management can now be taught at some Farm Institutes, in addition to the main experimental stations.

(d) Irrigation and Swamp Reclamation

(i) *Kigezi.*

69. In Kigezi, the Water Development Department continued to drain the swamps, but due to recent flooding water-tables everywhere have risen. Nevertheless, excellent crops of sweet potatoes, maize, sorghum, Irish potatoes and beans have been grown on previously drained swamps. Work is in hand for planned production of vegetables in certain selected swamps around Kabale in order to give a controlled supply according to Kampala demand. Plans were being considered for a tea estate on the Kivuruma swamp similar to the estate in Rwanda on the same swamp.

(ii) *Mubuku/Sebwe Irrigation Scheme*

70. This scheme is designed to demonstrate the possibilities of large-scale development of irrigation with mechanisation, and the only limiting factors were human. These are chiefly that the annual area allotted for cultivation, six acres, is rather too large for a small family to work properly. Nevertheless, the scheme has demonstrated that under irrigated farming, reasonable application to their work by persons anxious to do well can result in a very good standard of living indeed. A test herd of cattle remained healthy and free from trypanosomiasis throughout the year, showing that draught animals can be used, as well as machines, to increase output.

71. A guide to the range of yields from irrigated crops is given below:—

Crop	Yield per acre (lb.)	Profit per acre
	lb.	*Shs.*
Cotton ..	up to 1,227	339
Maize ..	up to 2,515	204
Groundnuts ..	up to 1,412 (unshelled)	302

Using a variety of spraying treatments to control insect damage, yields under irrigation were:—

	lb.
Groundnuts	1,563– 1,885 (unshelled) per acre
Beans	929– 1,492 per acre
Onions (also as a variety trial)	6,480–17,520 per acre

72. Texas Grano onion gave the highest yield. Banana variety trials gave yields of 18,088 lb. per acre at 10′ × 10′ spacing from Endyabawali, and 20,144 lb. per acre from Kitika at 10′ × 5′. Work was also carried out on fifteen observation plots of grasses and legumes. Very good yields were recorded from elephant grass, *Panicum maximum* and *Brachiaria ruziziensis*. Among the legumes, *Stylosanthes gracilis* and Heavy Peruvian Lucerne did well.

(e) Settlement Schemes

73. The following areas were fully occupied and were closed to organised settlement: in Kigezi, Kihihi and Bwambara; in Toro, Bigodi, Nkongora and Nsinde; in Bunyoro, Ntoma and Kigumba, and in Ankole, Nyansimbo and Kakinga.

74. In the Oruchinga Valley in Ankole, the Department continued to be concerned only with advice on the production of food crops and the supply of seed and planting material. This work was carried out by one agricultural assistant with initially 10 agricultural headmen, later reduced to four, among 2,467 families and in all, 12,335 people. Ration issues were stopped at the end of June. It was decided that the cultivable acreage allotted to each encampment in the south could not provide sufficient food, apart from the fact that game damage, chiefly by hippos from the Kagera River and baboons, was so severe that refugees were losing most of their crops.

It was therefore decided that at least half the families should be moved to Kahunge in Toro. The acreages of all crops planted totalled 1,730 acres. At the end of the year, as a result of insurrection in Rwanda, a large number of new refugees entered this area.

75. At Kahunge in Toro, families from Oruchinga were moved in at the rate of 250 persons per week, and by the end of December, 4,025 people had been moved. Departmental staff were posted to Kahunge to help, and planting material and seed were supplied. Settlement was arranged at a density of 10 families on 100 acres, equally divided.

76. The Bunyoro Kingdom Government and the Kabaka's Government ran settlement schemes at Kitundura and Ndaiga respectively, mainly to use unpopulated country and introduce group-farming systems. In the Busoga resettlement scheme, no new projects were initiated, and during the year the administration of the area was taken over by the Busoga Government.

(f) Ox-Cultivation

77. Demonstrations and extension work were carried out in all regions and in Buganda Kingdom. Research and development work continued at Serere. The programme comprises staff training, ox-demonstration units, implement development, and publicity and education.

78. Staff training was strongly emphasised and was carried out throughout the year with one-week courses for district staff, four to six-week courses for ox-instructors, and three-month courses for agricultural assistants (ox-cultivation). Mobile ox-demonstration units, of which there were four, toured the districts during the year. Their success depends on the preparations and publicity carried out by district staff and upon the money available in the district. The Uganda Film Unit made a film on ox-cultivation in co-operation with Special Development Section staff.

79. A cheap, workable long-beam ox-plough has been produced, and is in the final stages of testing. The A.H. Seeder, a modified version of the Bentall, has passed final tests and is on sale at a subsidized price. Two new machines, the Tropiculteur and the Ariana, arrived from France for testing.

VI. AGRICULTURAL EDUCATION

(i) *Agricultural Colleges*

80. Bukalasa and Arapai became colleges on 1st March, upon the commencement of their first full year of teaching for the diploma in Agriculture, a three-year course.

81. Minimum entry qualifications are Cambridge School Certificate or General Certificate of Education, with a pass in Mathematics, and credits in Biology and Physics with Chemistry, excluding Health Science, or pure Physics and Chemistry. The two-year certificate course requires a pass in the same examinations as above with one science credit, excluding Health Science, and a pass in Mathematics.

82. At Bukalasa, the first-year certificate course started with 13 students, including three from Zanzibar, of whom four dropped out. In the coming year the remaining nine will be joined by one student relegated from the diploma course and one of the teacher group who has opted to become an agriculturist giving a second-year certificate start of 11 for next year.

83. The second-year certificate class started with 12, including two relegated from first-year diploma. All made satisfactory progress, but did not complete the course as in October seven were selected for a diploma course overseas. The number of certificates finally issued was only five, of which three went to Zanzibar students.

84. In addition, a group of 20 entrants was selected by the Ministry of Education to follow the first-year certificate course as part of their training for rural science teachers, and all those who stayed on passed the examinations.

85. In September the Co-operative Central Training School was transferred to Bukalasa and now operates alongside the agricultural college. It provided a basic course for the training of Co-operative Assistants, and short refresher advancement classes for staff and officials, with initial places for 60, of which 42 were occupied.

86. The second and last one-year course to convert selected certificate holders into diplomates was extended to allow for a fourth term, as was previously done, and three out of the four obtained diplomas. The full three-year diploma course has now arrived nearly at its final form, and will result in an out-put of very useful agriculturists.

87. Student numbers still leave something to be desired, although future indications are that satisfactory numbers of the right quality candidates will be available for the diploma course. Recruitment to the certificate course is expected to be difficult. The recruiting position was temporarily worsened by the increase in the number of places available for Higher School Certificates in schools and in this year nearly one-third of those successful in the Cambridge Examinations went into fifth forms and were lost to training institutions.

88. At Arapai also, student numbers left very much to be desired. The position was aggravated by some students leaving after the commencement of the term for more attractive conditions and brighter prospects elsewhere.

89. Of the 24 entries for first-year certificate course, 12 were discontinued, one failed and 11 students finished with nine successes, three being discontinued. One of these three left for diploma training overseas.

90. The second-year diploma course comprised nine students from Bukalasa doing a year's practical work, and they were all successful. A further eight students from Bukalasa who had obtained their certificates were tested on their practical ability and six passed. They will not be required to take the second year of practical work.

91. The preparation of a syllabus for a diploma (mechanization) was completed, for use in 1964. This course is designed with the object of turning out a student trained to a greater degree than is the case of the diploma in Agriculture in the managerial skills necessary for mechanised estates and group farms.

(ii) *District Farm Institutes*

92. The construction of two more District Farm Institutes was completed during the year at Bushenyi for Ankole District and Kamenyamigo for Masaka, while a third at Arapai was opened in temporary accommodation at the

Agricultural College, to serve Teso District. This brings the operational total to eight. Work was also started on the Karamoja District Farm Institute at Nabuin at the end of the year. The total attendance (excluding one-day courses) was 5,800 students, on a total of 270 courses, compared with 3,935 students in 1962, and 900 in 1961. A wide variety of subject matter was covered in lectures and demonstrations to Government officials in the Veterinary, Co-operative Development and Agricultural departments, as well as to chiefs, progressive farmers, emergent farmers and their wives, sons and daughters. The courses usually last from three to 10 days, or longer, and are very popular. They include instruction in the best agricultural techniques, in working oxen, the husbandry of exotic dairy cattle, culture of the common food crops as well as cash crops and estate crops, and co-operative and veterinary subjects. Visits to progressive farmers, estates and other places of interest are also included in the courses.

(iii) *Farm Schools*

93. The nine Farm Schools are situated as follows:—

Acholi—Gulu, two; West Nile—Koboko; Lango—Aler; Karamoja—Kaabong; Bunyoro—Bulindi; Busoga—Wairaka; Teso—Amucu, and Kigezi—Nyarusanje. The Ministry of Education is responsible for Farm Schools (which are now inter-denominational) with an intake from Primary VII schools, and provide a four-year course in agriculture and general education compared with the post-Primary two-year course previously given by denominational schools. The schools are being enlarged and better equipped, and will produce progressive farmers and farm workers possessed of agricultural skills rather than agricultural advisers.

VII. MECHANICAL CULTIVATION

(i) *General*

94. The emphasis in the Department's policy changed dramatically during the year with a big swing towards increased mechanisation. This was achieved by means of the Tractor Hire Service and by the establishment of Group Farms. Provision was made for the supply and maintenance of heavy bush-clearing machinery for use in establishing barriers against the movement of tsetse fly. For the intensified mechanisation programme one hundred new tractors were delivered with one hundred each of ploughs, disc-harrows and trailers, and a further 250 tractors were ordered during the year. The development of new implements for use in ox-cultivation, the demonstration of ox-cultivation techniques and the training of operators and oxen continued on an intensified scale.

(ii) *Group Farms*

95. The two major and most difficult operations in arable farming in tropical agriculture are the clearing of virgin bush and the subsequent ploughing of the land. The conventional method of using hand-hoe as an implement of cultivation is not only laborious, but is too slow to permit the planting of a substantial acreage to be completed at the optimum. Therefore it was decided to help the farmer by introducing mechanical power to overcome the bottleneck created by the need to undertake a large number of operations

at the break of rains. It was appreciated that for economy in operation it was necessary for large contiguous areas to be cultivated at one time and this led to the concept of group farms.

96. Group farming entails the establishment of large, planned co-operative farms to replace the existing pattern of small, unplanned, semi-subsistence holdings. They are destined to become nuclei of integrated rural development schemes, where Government and the participants will jointly undertake the tasks of land development and increased agricultural production, leading to the improvement of every aspect of rural life. The role of mechanization and modern agricultural methods on these group farms will be to assist the farmers to produce the maximum amount of crops at the lowest possible cost, and yet at the same time maintain, and where possible improve, soil fertility.

97. A group farming scheme is a joint exercise between the departments of Co-operative Development and Agriculture. The Co-operative Development Department is concerned with the social and co-operative credit aspects of the scheme. The Agricultural Department provides the following services to approved group farms:—

(*a*) planning of the Group Farms;
(*b*) initial bush clearing;
(*c*) basic essential services, e.g. access roads and water supplies;
(*d*) purchase and provision of tractors to do the main cultivation by the Co-operative Development Department;
(*e*) a qualified Farm Manager.

The management of a Group Farming scheme is in the hands of a management committee, of which the District Agricultural Officer is the Chairman and the District Co-operative Officer is the Secretary and the members are elected by all the members of the scheme. The committee is consulted, at all times. The day-to-day running of the farm, along the lines approved by the committee, is in the hands of the Farm Manager.

98. Before a Group Farm can be established the following conditions must be fulfilled:—

(*a*) the members must belong to a Co-operative Society eligible for credit facilities under the Co-operative Credit Scheme;

(*b*) the society must elect a committee whose decision will be binding on the members;

(*c*) the members of the society must have sufficient land of reasonable fertility, which they are prepared to allocate to the scheme for the purpose of group farming;

(*d*) two agreements have to be signed—agreement "A", between the society and Government, and agreement "B", between each participant and the society.

99. The following Group Farms started operation during 1963:—

(*a*) *Bulawula*—in Bugerere, Buganda, unfortunately made a late start with planting cotton and weather conditions were unfavourable. Two hundred acres were cleared of bush by Lugazi Sugar Factory, and 100 acres were planted to cotton by the end of July and subsequently sprayed. The remaining 1,200 acres have been marked out on the ground.

(*b*) *Bituli*—on the Nile in West Busoga, came into operation early in the year, and surveying and bush clearing was completed by the end of April. Ploughing followed and 146 acres were planted cotton in June–July. Weeding and spraying was also done by tractor.

(*c*) *Pabbo*—in Acholi had 80 acres twice ploughed, disced, planted and sprayed.

Other farming schemes are being considered in many areas of Uganda for operation in 1964.

100. A Land Planning Unit has been established to undertake the preliminary selection, planning and layout of Group Farms and other large-scale projects. This unit will also liaise with other Ministries and agencies which are concerned with rural development to ensure that Group Farms and settlements are established on a sound technical, administrative and social basis.

(iii) *Hire Services*

101. Tractors available for hire operated in the same areas as in previous years and cultivated a larger area than ever before, 11,702 acres compared with 6,413 acres in 1962. Hitherto, all tractor cultivation has been on a strictly cash-in-advance basis. Normally the time of cultivation coincides with the greatest scarcity of money and this factor has restricted tractor work in the past. With the advent of the Co-operative Credit Scheme administered by Co-operative Societies, short-term credit has enabled the small farmer to hire mechanical aids and has considerably extended the scope of the hire services.

(iv) *Investigational Farms*

102. Kigumba Farm in Bunyoro has continued in use as a fully mechanised farm run by the Special Development Section, primarily for the multiplication of pedigree cotton seed. The 1962/63 crop of NC 62 seed grown on 180 acres produced an average yield of 1,100 lb. seed cotton per acre. The 1963/64 crop is estimated to yield 1,100 lb. per acre from 200 acres. Seed of the new Kawanda bred maize variety 5813/RRM/58 planted on 60 acres yielded 2,415 lb. grain per acre and showed a profit of Shs. 230 per acre.

(v) *Tractor Drivers' Training School*

103. A 'crash' training programme for departmental tractor drivers and mechanics handled 238 students compared with 31 last year and reflects the dramatic increase in mechanisation which is taking place. Preparations were in hand for the transfer of training services to Arapai Agricultural College early in 1964. Training of drivers for privately-owned tractors continued. There are now 87 privately-owned tractors in the country, excluding tractors at six missions in Masaka and four operated by farmers in the Suam area for contract ploughing.

VIII. INVESTIGATIONS

(a) General

(i) *Kawanda Farm*

104. Weather conditions during the first part of this year were normal and fair crop yields were obtained. The third quarter was marked by low rainfall, and long dry spells adversely affected the growth of most crops. November

was unusually wet with 16·41 inches, nearly four times the average, and although December rainfall was also above average, dry spells provided suitable conditions for the commencement of harvesting. The total annual rainfall was 63·12 inches, compared with the average (28 years) of 47·26 inches.

105. Cotton in the 1962/63 season finally produced 380 lb. per acre compared with a nine-year average of 476 lb. Yields in the 1963/64 season are expected to be in the vicinity of 300 lb. per acre. The yield at Ssenge Farm, 2½ miles away, is expected to be in the vicinity of 800 lb. per acre.

106. The yield of maize in the first rains was rather poor. The average yield of MH/59 on 7·10 acres was 1,652 lb. per acre of shelled maize. Fields fertilized with 2 cwt./acre sulphate of ammonia produced approximately 300 lb. more grain per acre than unfertilized fields. Second rains maize suffered from dry weather conditions when young as well as from damage caused by intermittent storms. Harvesting commenced in late December and was not completed at the end of the year. The yield of first rains groundnuts on 7 acres was 905 lb. per acre of unshelled nuts and the yield of assorted varieties of beans on 16 acres was 728 lb. per acre. Highest yield of beans was 1,372 lb. per acre of Banja on strip X 7.

107. The supply of elephant grass grazing was adequate throughout the year except for a few weeks during the mid-year dry spell when the Jersey herd had to graze on Mayanja swamp. Fertilizing has greatly increased the yield of grass on both elephant grass and permanent pastures.

108. The costings farm has mixed fortunes but on the whole had a good year. All three Friesian cows were in milk for most of the year with Margaret producing 1,127 gallons, Miller 862 gallons, and Drusura, the half-Guernsey daughter of Margaret, producing 916 gallons, in her heifer lactation. Margaret and Miller still have a month of their respective lactations to complete. The yield of coffee is not very high but the appearance of the trees has improved vastly since the application of 4 cwt. per acre of sulphate of ammonia early in the year, and high yields are expected next season. The pair of working oxen has contributed greatly to the reduction of cultivating and weeding costs on the farm. Arable crops were rather poor, though a good yield of groundnuts was obtained, partly attributable to the good stand obtained by the use of a Bentall seeder. Despite the reduction of weeding costs on cotton, the crop is still a long way from being profitable under our conditions. Of the minor crops, an eighth of an acre of sprayed and fertilized tomatoes proved very profitable.

109. With the drier conditions prevailing in 1963, it was possible to recommence work on Mayanja swamp and just over an acre of raised beds were prepared for vegetable growing. The vegetables, especially those on limed soil, did well but with the onset of the second rains, drainage again became a problem.

110. With the assistance of the Training School at Namalere, some 50 acres were ploughed and disced at Ssenge Farm enabling work to start on the laying out and fencing of the rotational blocks. Eight 5½-acre blocks have been laid out and fencing was commenced on the first two which will be ready for sowing to short grasses early in 1964.

(ii) *Serere Farm*

111. The weather was uncertain and difficult at critical periods. Dry spells followed germination of first and second rains crops. The first dry spell stunted the early growth of sorghum and groundnuts and contributed to damage by shoot fly and stem borer in the former and rosette disease in the latter crops. The months of highest rainfall were April in which 12½ inches fell, August, 11¼ inches and over nine inches in November, contributing to another year with an unusually high total rainfall of 72·40, inches compared with the average fall of 54 inches.

112. Development of the farm to its full productive potential is still far from complete, and work proceeds to this end each year to the extent that finance allows, partially in regard to ploughing out and re-seeding old natural pasture with seed mixtures. A fish-pond was established and stocked with Tilapia hybrids and Golden Carp, which at the first cropping produced 150 fish over 2 lb. in weight, equivalent to 600 lb. per acre, in nine to ten months.

113. The eucalyptus plantation which was established in May, 1962, has grown to over 20 feet in eighteen months. Labour relations were good with an average of over 320 men employed. In so far as the bounds of field experimentation allow, a policy of employing more mechanisation, and fewer but more highly-paid and more skilled workers is being followed.

(b) Soil and Land Use Surveys

114. At Kawanda, the Soil Survey Officer was on leave for six months and on his return has been working full-time on the Group Farm Planning Team. There is a large backlog of survey reports to be completed and issued when the present urgent work on group farms comes to an end.

(c) Soil and Plant Chemistry, General

115. The data from the series of permanent annual crop manurial experiments in Buganda, Western Region and West Nile are being collated and analysed.

116. In the fourth cropping year of an experiment at Kawanda to measure the regenerative effect on the soil of various grass rest treatments, the crop yield differences, although still significant, were smaller than in past years. Once again the best treatment was shown to be a rest of three years' elephant grass, which was burnt on the site twice each year. The yields of cotton on these plots were very poor in the 1962/63 season.

117. A newer experiment for comparison of regular applications of FYM, NPKMg fertilizers, and resting under elephant grass, in their effects on succeeding crops indicated that all three treatments were equally successful in their effects on cotton yields. However, the artificial fertilizers give much higher yields of the following maize crop, probably due to the large nitrogen dressing applied in this treatment.

118. Leaf samples were taken from maize, cotton, groundnuts and sweet potatoes in fertilizer experiments. Various types of leaves and times of sampling are being compared with cotton in order to find which sampling procedure is

best correlated with seed cotton yields and responses to fertilizer treatments. At Serere, on the permanent manurial experiment top yields of cotton of 1,800 lb. per acre were produced on manure treatments compared with 800 lb. on control.

119. On the long-term soil fertility experiment there was further evidence, from a range of annual crops, of benefit from nitrogen fertilizer and from phosphate when applied with nitrogen, but little if any benefit from phosphate applied alone. These results are in complete contrast to the effects of the same fertilizers on grass/legume pastures where phosphate alone (this refers only to single superphosphate containing 10 per cent sulphur) has increased yields very substantially and nitrogen reduces the amount of legume present resulting in no gain of overall herbage yield.

120. Further investigations were continued with the legume *Stylosanthes gracilis* but have so far failed to solve the problem of the depressing effect of this legume on yields of crops subsequently grown on the same land, an effect first noticed in 1961. It is tentatively attributed to a phytotoxin in the leaves of *S. gracilis* but the effect does not occur on all soils on the farm and is ameliorated by the application of phosphate fertilizer to the crop.

(d) Pesticide Research

121. At Kawanda, herbicide trials on *Oxalis latifolia* were carried out using thirteen different substances. Of these only Fenac at 15 to 30 lb., Trifluraline at 1 lb., Hyvar at 4 to 8 lb., and Shell WL 5792 at 10 to 15 lb., all active ingredients per acre, were effective. Of these, Trifluraline seems the most promising.

(e) Stored Products Pests

122. To counteract mustiness in Robusta coffee beans, irradiation with ultra-violet light failed to reduce the spore load on beans contaminated with storage micro-organisms, which were identified as bacteria and actinomycetes.

(f) Chemical Analysis

123. At Kawanda about 3,500 soil samples and 3,000 leaf samples, mainly from experiments, were analysed during the year.

(g) Crop Protection Machinery

124. The Jones' Boom came on the Uganda market early in the year. It is designed for spraying cotton planted with an inter-row spacing of 26 or 36 inches, and additional uses with groundnuts, beans and other crops were found for it. Over 500 were sold. Trials at Serere indicate that no great improvement on the plantector sprayer is effected by use of the Jones' Boom but it is, of course, quicker in use.

125. A new lance for tree crop spraying was designed and produced commercially in the United Kingdom and is now available in East Africa. This lance, $4\frac{1}{2}$ feet long, is made of lightweight alloys and weighs just over one pound. Considerable time and effort went into the selection and setting up of equipment for trials in Kigezi on the control of Coffee Berry Disease. It is hoped the results will give a positive indication of the most suitable fungicidal applicator.

(h) General Entomology

126. Cotton continues to be the main crop studied at Serere, but more emphasis was placed on the study of groundnut rosette disease factors, and the control of *Aphis craccivora*—Koch. Light trap studies on *Spodoptera exempta*—Walk (the African Army Worm) continued.

127. Experiments with the new aphis-specific insecticide Menazon, showed that a considerable degree of control of rosette disease was possible. Spraying resulted in economic increases in yield and since there has been a major reduction in price, the prospect has become even more attractive.

128. Extensive trials in cotton pest control were continued at Serere, Ikulwe, Tororo, Ngetta and other centres. At Serere the new insecticide Thiodan was tried out with promising results. A trial comparing four and six sprays at 14 and 21-day intervals using 1 lb. of active D.D.T. per acre showed that an increase in the number of sprays did not appreciably increase the yield of cotton but it did lead to an increase in the population of Red Mite, *Tetronycus* spp.

129. There was a large increase in the Army Worm population in February, and March. Infestation was sporadic and fortunately the massive invasion which threatened did not materialize.

(i) Crop Investigations and Research Annual Crops

(i) *Maize and other Cereals*

130. District Variety Trials were planted at 22 centres in the first rains and nine centres in the second rains. The five varieties planted were KM/54, 5414 RRM/58, BR 11, BR 29 and Local Variety, differing with locality. With the exception of Local Varieties, the remainder are all basically of Muratha ancestry and results so far indicate little difference in yields although all were superior to local types. Preliminary varietal testing was continued at Bukalasa and Kawanda, and further progeny row testing and selection at Kawanda. A collection of 44 varieties incorporating a wide range of genetic material was received from the Maize Breeding Station, Kitale, for planting as demonstration plots. A number of the recently produced Kitale hybrids gave indications of some promise though they were generally long-term (150 days) varieties.

131. In milling tests conducted by the Marketing Officer, Eastern Region, grain of the Kawanda bred rust resistant Muratha (5314 RRM/58) was as good as or superior to commercial varieties from Kenya, and was, therefore, able to command a high premium when sold for flour production. Active steps for the rapid multiplication of this variety and for its distribution to farmers have already been taken. Observations on maize streak taken during the second rains indicated a low incidence.

132. The East African Agriculture and Forestry Research Organisation Sorghum Breeding Unit is an independent body based at Serere and the following information is an extract from the annual report of the unit.

PLATE I. The Hon. M. M. Ngobi, Minister of Agriculture and Co-operatives driving one of the newly-arrived tractor at Namalere.

PLATE II. The Broom Spray for spraying cotton. This pump is also subsidised by Government for cotton growers.

[*Photograph by Mrs. J. C. Davies*]

PLATE III. A demonstration of the Polyculteur using two seeders in cotton planting at Tororo District Farm Institute.

PLATE IV. Mechanical cotton planting on a Group Farm in Teso.

PLATE V. A smallholding at Kawanda showing the Stall Feeding Unit of three Friesian cows operated by one man.

PLATE VI. Polyculteur equipment ox-weeder.

PLATE VII. The practice of planting all crops in rows is becoming very popular, especially in the Eastern Region. Groundnuts.

[*Photograph by M. F. Merchant*]

PLATE VIII. A Progressive Farmer's tractor ploughing on the contour in Suam in Sebei District.

PLATE IX. Outgrowers' tea in Ankole. This tea is $2\frac{1}{2}$ years old and is being tabled.

PLATE X. A general view of Soil Conservation Work in Suam Muruka, Gombolola Bukwa, in Sebei District.

PLATE XI. Row cropped Finger Millet on a Prison Farm in Bukedi.

PLATE XII. A happy group of women on a course at Tororo District Farm Institute.

133. Sorghum out-yielded maize at many centres where rainfall was sufficient for a good maize crop. The interaction between maize, sorghum and fertilizer level will be tested next year to clarify this. Serere hybrid sorghums performed well especially H × 57 (CK 60 × SB 65) and H × 58 (CK 60 × SB 68). In the Uganda trials the hybrid always out-yielded the better parent, average yields over Uganda being as follows:—

Parent Yield	1,000 lb. acre grain	2,000 lb. acre grain	3,000 lb. acre grain
Hybrid yield ..	1,785	2,950	4,115
Gain from hybrid ..	+78%	+47%	+37%

Some hybrids from the Rockefeller Indian Programme have very good grain and gave good yields at Serere. New breeding systems for developing better varieties and hybrids were designed, and their testing began. A fertilizer trial showed good responses to nitrogen and less to phosphate; it also showed that the time of application of nitrogen appeared to be of some importance.

134. A series of testing tests showed that a wide range of suitable food sorghum is available, and more statistical testing will be done next year. Work on bird resistance continued successfully and crosses were made to determine which lines will be most effective in hybrid production. The tetraploid programme made good progress and several good cultivated types are almost ready for yield testing.

135. At Tororo District Farm Institute the variety SB 68 showed an excellent level of field resistance to attack by *Striga hermonthica.*

(ii) *Beans*

136. The optimum spacing from trial results has been found to be:—

(*a*) *Bush types*—one and half- to two-foot rows, four seeds per foot up to 70 lb./acre;

(*b*) *Semi-climbers*—one and half- to two-foot rows, two to four seeds per foot 36 lb. seed/acre.

District variety trials were planted at 13 centres in the first rains and 15 centres in the second rains for testing new varieties against established varieties. Seed for variety trials and demonstration was supplied for planting in Karamoja. The breeding work at Kawanda included importation of varieties, preliminary observation and screening, selection and progeny testing, preliminary and detailed varietal comparison, hybridisation selection and seed multiplication. In the hybridisation programme attempts are particularly being made to incorporate the disease-resistance and high-yielding capacity of black-seeded varieties with the coat-colour and greater palatability of popular local varieties. An endeavour is being made to select a white-seeded bean suitable for Uganda conditions and for canning. To facilitate hybridisation, a modified Panmix technique, successful in Central America, was tried, but initial results indicate only a very low rate of natural crossing at Kawanda.

137. An investigation into the status of black-seeded varieties of beans in Eastern Region revealed that these would be popular with growers if suitable

marketing arrangements were available, although they were decidedly unpopular for local consumption.

138. Studies of race and strain differentiation of the important bean diseases have been carried out by the Plant Pathologist. Such delimitation of races and strains is essential in the preliminary screening of new bean introductions, and selections to predict their reaction in the disease stratum obtaining in Uganda. The use of fungicide sprays to control disease was tested at three centres in the first rains and marked yield responses were obtained. A trial at Kawanda in the second rains gave a response in quality and yield. Further trials will examine the extent to which advantage from the use of fungicides is carried through to the following crop by the planting of the resultant less disease-affected seed.

(iii) *Groundnuts*

139. Work continued to find improved varieties suitable for the export confectionery trade. Bukene, a variety suitable for this purpose, yielded well in the district trials, giving a bolder sample than Natal Common. Mani Pintar gave outstanding yields at all trials, out-yielding B.1 by over 25 per cent. Samples of these varieties have been sent to Marketing Officer, Eastern Region for trade evaluation. At Serere, B.15, a single plant selection from B.1 showed promise and will go into district trials in 1964. No. 295 a rosette resistant selection from Senegal continued to display resistance and will be on trial next year. A further 10 rosette resistant lines ex Senegal were obtained from Nyasaland. Selection for yield and quality continued on the collection and hybridisation programme for rosette resistance to obtain resistance in types similar to local farms.

140. Agronomic experiments showed that the planting of graded seed of the types produced by the Busoga pilot scheme, that is, primarily for export, could result in more vigorous growth and higher yields than those obtained by planting ungraded or small seed. The importance of time of harvesting with nuts destined for grading was demonstrated. A week either side of the optimum caused heavy losses in the premium grade.

(iv) *Cotton*

141. District trials in the Northern and Eastern regions averaged about 1,000 lb. seed cotton per acre in the "S area" and 800 lb. in "BP 52 areas". Albar 4 MB (black-seeded) out yielded all other varieties. Some other advantages of black-seeded Albar are:—

(i) it gins rapidly on roller and saw gins;
(ii) is highly suitable for accurate mechanical planting;
(iii) has a reduced amount of seed coat nep and, being less bulky, is cheaper to store and transport;
(iv) it has proved to be markedly resistant to bacterial blight.

142. The importance of sowing date was again measured and confirmed previous results. Cotton planted in mid- or late May yielded 30 per cent less than that planted in late April and early May. In Karamoja and Sebei also April and early May planting dates gave optimum yields exceeding 1,000 lb. seed cotton per acre. Again there was an average yield increment of 10 per cent

arising from the 2 feet × ½-foot planting, thinned to one plant per hole. This increment was greater for later plantings, further confirming previous results.

143. A trial at Mbarara in Ankole on 17 acres, comparing five different spraying regimes with an unsprayed control, was a complete failure. This was due to a poor start owing to partial failure of the early rains, soil fertility was very variable and although a fair crop was set, it failed to open due to torrential and unseasonable rains. At Bigyera in north Ankole a small replicated spraying trial gave 1,094 lb. seed cotton compared with the total from the unsprayed control of 880 lb. The difference was not significant and the trial is being repeated again this season.

(j) Perennial Crops

(i) *Coffee (Arabica)*

Breeding

144. Seven sets of variety trials were planted in Bugisu, three in Western Region and one at Kawanda during the year. An agreement was reached for Uganda to collaborate in the East African Arabica Breeding Scheme. Important new accessions arrived from quarantine at E.A.A.F.R.O., including types resistant to most of the known races of rust.

Pathology

145. The testing of widespread collections of *Hemileia vastatrix* continued to reveal pathogenic races, ten from Arabica and three from Robusta coffee. The problem of breeding for disease resistance in a perennial crop by the accumulation of major genes for their immunity to specific races was discussed in a paper presented to the East African Specialist Committee on Agricultural Botany and an alternative approach suggested for the East African Breeding Scheme. This would utilize the genetical differences in leaf abcission reactions which are being found at Kawanda, and thereby produce Arabic tolerant to rust, which normally accelerates abcission.

146. In conjunction with the Senior Chemist, a large-scale trial of copper spray and nitrogenous fertilizer treatments commenced on 95 farms in Bugisu and Sebei. The marked improvement in foliage density and leaf colour on treated plots already visible at the end of the year justified the organisation of this trial which received four high-volume sprays. Yield responses are expected in 1964.

147. A formal trial at Bugusege in Bugisu District is providing detailed epidemiological information for immediate application to the larger field trial. Records show the need to apply an extra (fifth) spray in the January dry season to compensate for the infection of the susceptible growth flushes with innoculum carried inadvertently through the dry season as a result of the well-known anti-leaf-fall effect following copper spraying. Preliminary figures show a 100 per cent yield increase from four sprays in a year producing a heavy crop.

148. With Coffee Berry Disease, due to the rapid spread of the outbreaks in Kigezi and Sebei, there was a policy change from attempted eradication to replanting with a resistant variety and chemical control. A plant pathologist explored the possibility of dusting and low-volume spraying in Kigezi. Results

will become available in 1964. The general issue of resistant cultivars is now postponed pending their testing in trials. In Sebei, where the dry season reduced the severity of the attack no field trials have commenced, but advice is being given in a scheme planned to encourage growers to spray against this disease.

Entomology

149. In trials on *Antestia* control the application which kept *Antestia* population down for the longest period was the single application of four pints malathion 50 per cent E.L. per tree.

150. The new insecticide Fenitothion has been tested against *Antestia* at rates as low as $\frac{3}{4}$ pint per acre of the 50 per cent concentrate. It is also effective against lace bug and there is evidence that if a fairly high dosage per acre of active ingredient is used, one application will be sufficient to control this pest. The numbers of lace bug have been counted regularly in farmers' coffee, and were consistently low in the period October–December.

151. Control of the White Stem Borer, *Bixadus sierricola,* by painting coffee trees up to two feet above ground level with a solution of 0·5 per cent Dieldrin, succeeded in reducing population numbers drastically.

152. The *Cecidomyid* causing Arabica berry blister has now been reared in large numbers and named as *Contarina sp. nov.* Since it was first recorded some years ago in Toro, it has spread to Ankole and Kigezi.

153. *Lycidocoris mimeticus* (Miridae) has been a little more troublesome than usual this year. Normally it is only severe under shade, but has now been causing damage under unshaded conditions. It may be increased by the routine *Antestia* control spraying, as control with malathion can only be obtained with considerable increase in the volume of applied insecticide.

Agronomy

154. Spacing trials are now in their second year and it is apparent that general growth rates have been controlled by altitude, that is temperature, but during the next years spacing effects may influence growth rates.

155. Profitable responses to the application of nitrogenous fertilizers have been obtained at Bugusege. No definite recommendations can be made at this stage as it is probable that fertilizer usage will be affected by the rust-control measures currently under investigation. There are 95 trials in Bugisu for copper spray and nitrogenous fertilizer, and 20 trials at Ibanda in Ankole on nitrogen fertilizers only.

(ii) *Coffee (Robusta)*

Breeding

156. The current programme continued with the setting of polycross seed at Kawanda. Using an improved bagging technique ten hybrids were produced simultaneously, and the high degree of self-incompatibility confirmed. On the basis of statistical studies, future progeny trials will be yield recorded for five years using a three or four tree row as a plot. The plan to accumulate further breeding material was postponed until a plant breeder becomes available. A further variety trial was planted at Kawanda during May with the object of comparing strains for quality and resistance to Red Blister Disease.

Pathology

157. Further information on stock resistance to Red Blister Disease was collected as a step towards a practical solution. A significant observation is the apparent increase in susceptibility when nitrogen nutrition is low.

Entomology

158. A preliminary trial comparing the eight different insecticides in an attempt to control Fruit Fly gave negative results. A side-effect to this trial was the discovery that Endosulfon and Dieldrin were giving the best control of Berry Borer. Berry Borer is causing extensive damage in some areas of Ankole. Samples of cherry over a three months' period have yielded none of the parasites of this pest, and it is hoped to introduce these from Kawanda to try to reduce the damage.

Agronomy

159. In the spacing trial (hedge trial) comparing nitrogen and potassium fertilizers with mulching, the trees have continued to crop heavily in the second season of picking. The first year's crop was 3 cwt./acre from the heavily fertilized and mulched trees. In weed control, preliminary observations have indicated that contact herbicides may be capable of being integrated into ground management systems. Further trials using residual and contact herbicides are planned.

160. An examination of all available data from fertilizer trials since 1957 has shown that the most profitable application is ammonium sulphate nitrate of 4 to 6 cwt. per acre. Small dressings of nitrogenous fertilizer are uneconomic especially where ground management is poor. Fertilizer supplying phosphorus, potassium, magnesium, sulphur and trace elements are not recommended. The 80 fertilizer extension trials on Robusta coffee in Mityana, Mubende and Ankole are continuing. The type of nitrogen fertilizer used appears to have a relatively minor effect on short-term yields and trials are now being changed to include rates up to 8 cwt. of ammonium sulphate nitrate or equivalent.

Physiology

161. A suitable measure of growth has been evolved through sampling a large number of trees. Growth can be adequately measured by taking the difference in the logarithm of the girth of the stem of the individual shoots. Variation may be expected between clones and between different climatic regions.

162. Studies of the effect of moisture conditions at the time of flowering on the yield of robusta coffee at Kawanda have led to the use of the hyperbolic tangent of the rainfall occurring in December as a satisfactory estimate of moisture availability. Further work has shown that the production of Robusta coffee on a national scale can be related to the rainfall occurring during December and May for producing areas north and south of the Equator respectively.

(iii) *Cocoa*

Breeding

163. A short-term programme involving the hand pollination of selected Upper Amazon mother trees with pollen taken from Amelonado male parents has been started. Observations have been made on crop production by individual trees in relation to their stem diameters at an age of two years with promising results. A second trial has been laid down to test the feasibility of selecting six months old seedlings in the nursery on vegetative vigour. Crop recording of individual outstanding trees has been commenced with a view to establishing a collection of material for use in future breeding programmes.

Pathology

164. Mapping has commenced of the incidence of Verticillium Die-back in relation to soil conditions.

Entomology

165. It has been shown that a 0·25 per cent Menazon spray on nursery plants gives complete control of Cocoa Aphis.

Agronomy

166. Only a 4 per cent growth improvement was recorded at 30 months between trees planted in $2' \times 2' \times 2'$ holes and holes just large enough to accommodate the potted seedling. Growth under mature Robusta coffee has been satisfactory. The most promising methods of establishment under planted shade so far has been found to be (*a*) *Tephrosia* hedges planted north to south to act as wind-breaks and (*b*) overhead shade of either *Maesopsis eminii, Grevillea robusta,* plantains or *Tabebuia rosea.*

Monkey damage to pods at Kituza was controlled by coating pods with 1 : 1 mixture of cow dung and clay.

Physiology

167. Records of air temperature and soil moisture availability have been taken to seek correlations between these data and intensity of flowering and leaf flushing.

Processing

168. Work has commenced on the construction of a fermentary. Based on results obtained under operating conditions, recommendations will be made for the construction of fermentaries in the cocoa producing areas.

Extension Services

169. During 1963, seedlings were issued in sufficient quantity to plant 217 acres at spacing of $10' \times 10'$.

(iv) *Tea*

170. Reports of cankers and die-back on two to three years old tea have been received from most of the new tea growing areas in the Western Region. Single branches on scattered bushes are affected and although *Nectria ochruleuca* has been found in some of these cankers, laboratory work has shown that *Helopeltis bergrothi* is probably the primary cause of the cankers.

(k) Pasture Agronomy

171. Methods of production, harvesting and cleaning of seeds of Guinea grass, *Hyparrhenia, Stylosanthes,* and *Centrosema* continued to be examined on a large scale. Improved pasture seed was retailed on the Uganda market for which, to date, Serere remains the sole supplier. By the end of the year arrangements were completed for the commercial production of Likoni Guinea grass seed elsewhere in Uganda and seed for this purpose was supplied. This variety will now be produced, processed and retailed commercially. In the case of *Hyparrhenia* all the mechanical problems have not been solved but the legumes present no difficulty.

172. *Stylosanthes* seed was issued for use in permanent pasture only. There is still doubt about its value in rotational farming although there was abundant further confirmation of its value for grazing.

173. This was the third season since the introduction of *Phaseolus atropurpureus* (*Siratro*), and trials suggest that it is likely to prove a most successful pasture legume and of more value than *Centrosema.*

174. More evidence was obtained supporting the hypothesis that the most efficient means of improving pasture yield and soil fertility is to fertilize grass legume pastures with single superphosphate. This fertilizer almost doubled the production of dry matter and the crude protein content of the herbage.

175. Examination of the protein content of such pastures shows that they are now not only adequate for all-year round growth of Zebu stock, but would also be adequate to support larger breeds of cattle. This is a considerable advance on the situation of two or three years ago. Grasses and pastures also benefit from applications of nitrogen fertilizer depending on local conditions. It is not yet clearly known to what extent the presence of legume reduces the need for nitrogen or affects the yield of grass.

176. Elephant grass is the best fodder grass for cutting in the moist areas of Uganda and probably in many other areas also. Under conditions of good fertility and moisture, it is probably as good as and may be slightly better than short grasses for pasturing. It has however, the disadvantages of requiring rather precise and careful management and of being a possible source of eye trouble in cattle. Rigorous attempts are now being made to control the spread of the stunting disease of elephant grass, which has virus-like symptoms, and has developed to a marked extent in planted stands at Kawanda. Investigations to identify the causative organism are in progress.

177. Pasture management experiments, planted in 1959 to ascertain the residual effect on crops of varying management systems, were ploughed up. The first test crop of maize gave clear evidence of differences arising from different treatments of the preceding grass crop.

(i) Livestock

178. At Kawanda, by the end of the year, 16 of the original 20 Jersey heifers had completed their first lactations and produced an average of 445 gallons in 310 days, with overall butter-fat yield of more than 5 per cent. The highest yielding cow produced 628 gallons in 336 days and the lowest 298 gallons in 296 days. One cow was lost in November at her second calving. In the twin

experiment, comparing indoor and outdoor management of cows at high levels of feeding, there appears to be little difference as far as milk yield is concerned. The total yield of butter-fat, however, of the indoor animals exceeds that of the outdoor animals by about 7½ per cent. Of the 14 pairs of twins obtained from the experiment, eight pairs are effectively in the experiment, with an additional two pairs which have not calved. The remaining four pairs are out of the experiment. At Serere the main work continued to be concentrated on the breeding programme of local type small East African Zebu, Large East African Zebu (Boran) and crossing of these two types in a tick environment where East Coast Fever is endemic. The objective of the breeding programme is beef production, but all semi-ranged milkers were recorded as producing an average of 142 gallons in addition to feeding a calf in a mean lactation of 274 days with a mean calving interval of 389 days.

179. Growth rates of all classes of stock were once again higher than in any year other than 1962. Steers averaged 533 lb. at two years old compared with the previous 20 years' mean of 399 lb. at this age. Heifers averaged 461 lb. compared with 351 lb. which was the previous mean. Some of this improvement is assumed to be genetic, but most of it is probably due to improved environment and management.

180. Measurement of the adaption of Boran cattle to the local East Coast Fever environment continues. Five imported bulls successfully gained immunity to the disease by natural means using the antibiotic (Aurofac) feeding method. The heifers which were imported earlier are thriving, and now exceed 1,000 lb. weight.

181. There has been severe culling of Boran susceptible to the skin disease *Steptothricosis* which has resulted in little trouble with the remaining stock.

182. There were a large number of Boran calvings, and calf mortality due to East Coast Fever was about 75 per cent. Growth of surviving calves was excellent. One bull weighed 624 lb. at 21 months and one heifer 750 lb. at 36 months.

183. In the first cross Boran stock, calf mortality was approximately 40 per cent. The survivors performed extremely well. The best calf weighed 496 lb. on weaning at 43 weeks and a heifer weighed 602 lb. at about 64 weeks. The first F.2 Boran progeny will be dropped in 1964 and it is the survival rate of these which is of great interest, in showing whether progress in selection for survival of these cattle in an East Coast Fever environment is being made.

184. The total number of cattle at Serere is now 650. Improved small Zebu bulls have been distributed as prizes in local good farming competitions.

185. The production of local sheep and goats was studied. It appears that these animals have a high rate of production of meat per unit area with estimated liveweight gains of 1 to 1½ lb. per acre per day, but the mature animals are very small and contain little potential for improvement by selection. Plans were made for the importation of a large breed of goats.

IX. STAFF

186. During the year, the rapid turnover in staff continued. A further number of expatriate officers with long service in Uganda retired under the General Compensation Scheme. At the same time many offers of training courses overseas were received through foreign agencies while these were invaluable in assisting in Ugandanization, the departure of many officers on these courses further complicated the staff position, and it was at times extremely difficult to maintain services at a reasonable level of efficiency. In view of this situation and the subsequent expansion of the mechanical cultivation services and group farming, it became necessary to recruit an additional number of Assistant Agricultural Officers from overseas, as an interim measure until trained Ugandans became available. In addition 21 Agricultural Assistants were sent overseas for training up to the level of a Diploma in Agriculture.

187. The senior posts in the Department were redesignated Commissioner, Deputy Commissioner and Assistant Commissioner for Agriculture during the year. Mr. G. W. Anderson, Deputy Commissioner, retired after 25 years' service in Kenya, Zanzibar and since 1953, in Uganda. He was succeeded by Mr. D. J. Parsons, M.C., as Deputy Commissioner. Major W. H. Edwards, M.C., who had spent the greater part of his 14 years' service in Buganda, also retired. Mr. J. M. Byagagaire and Mr. G. W. R. Onaba were promoted to Assistant Commissioner for Agriculture to fill the resultant vacancies.

188. It gives me great pleasure to acknowledge the contribution which has been made by all members of the staff of the Department to the development and implementation of agricultural policy during the year. The reduction in the number of experienced officers and the loss of continuity resulting from staff changes, at a period of rapid expansion in the number of projects and services, has placed a tremendous strain on staff at all levels. As a result of very great loyalty and devotion to duty, considerable progress has been made and a very successful year recorded. The administrative burden on headquarters staff has been reduced by successful integration within the Ministry and for this I am grateful to the Permanent Secretary and his headquarters staff.

189. I also wish to acknowledge the co-operation of all departments of Government and Kingdom, Territorial and District Administrations in Uganda. The unfailing co-operation and goodwill of the Director of the Empire Cotton Growing Corporation Research Station at Namulonge, the Director of the East African Agriculture and Forestry Research Organisation, and the Dean of the Faculty of Agriculture at Makerere University College, have been of great assistance both in the research and field activities of the Department.

190. I also wish to pay a tribute to the unfailing co-operation which has been forthcoming at all times from the staff of the headquarters of U.S.A.I.D. in Kampala and to the excellent work which has been put in by the staff who have been made available for work in the Department under the U.S.A.I.D. Scheme.

W. V. ROSE,
Commissioner for Agriculture.

ENTEBBE,
9TH APRIL, 1965.

APPENDICES

UGANDA RAINFALL: 1963

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	TOTAL	
ABI	Total: ins. ..	2·87	2·11	1·07	8·26	4·65	6·21	2·75	7·18	4·68	4·97	8·08	0·96	53·97	Met. No. 86 3002
West Nile ..	Days ..	5	5	8	13	10	8	10	13	11	14	12	3	112	
3° 05′ N.; 30° 55′ E.	Mean: ins. ..	0·67	1·16	3·75	5·06	5·62	5·19	5·47	9·21	7·50	7·85	4·91	1·51	57·90	
GULU	Total: ins. ..	2·75	2·64	3·82	11·55	13·10	7·25	5·68	8·21	2·27	7·21	6·90	2·41	73·79	Met. No. 87 3200
Acholi	Days ..	12	8	12	20	17	17	12	12	12	16	17	5	160	
2° 45′ N.; 32° 20′ E.	Mean: ins. ..	0·49	1·69	3·51	6·82	7·6	5·83	6·55	9·10	7·01	6·51	3·82	1·85	60·94	
LIRA (Ngetta) ..	Total: ins. ..	3·17	3·17	5·08	12·11	11·08	4·57	2·78	7·97	7·72	7·39	7·81	3·13	75·9	Met. No. 87 3202
Lango	Days ..	10	10	12	22	19	13	11	14	10	9	16	8	154	
2° 17′ N.; 32° 56′ E.	Mean: ins. ..	1·15	1·35	3·50	6·67	7·48	5·09	5·15	8·76	7·63	5·71	3·17	1·66	56·08	
MOROTO	Total: ins. ..	1·82	2·55	2·29	7·62	4·72	0·32	2·63	5·67	0·07	—	10·12	4·14	41·95	Met. No. 87 3400
Karamoja ..	Days ..	3	4	5	17	17	3	9	12	2	—	8	8	88	
2° 33′ N.; 34° 36′ E.	Mean: ins. ..	0·32	1·18	2·93	4·83	5·87	5·09	5·37	4·16	1·99	1·86	1·93	0·98	34·95	
SERERE	Total: ins. ..	3·36	7·17	4·85	12·60	5·93	3·25	2·96	11·24	4·85	4·08	9·20	1·69	71·18	Met. No. 88 3304
Teso	Days ..	7	11	9	16	15	8	8	10	9	9	15	6	123	
1° 31′ N.; 34° 11′ E.	Mean: ins. ..	0·86	2·09	3·88	8·11	7·57	4·17	4·57	6·56	5·64	4·52	3·82	2·15	53·94	
MBALE	Total: ins. ..	1·65	3·57	5·35	12·63	10·46	2·84	6·87	2·64	2·54	0·58	9·40	5·98	64·18	Met No. 88 3402
Mbale	Days ..	10	11	7	19	12	12	12	10	11	5	21	12	149	
1° 06′ N.; 34° 10′.	Mean: ins. ..	1·03	1·96	3·69	6·38	6·56	4·85	4·52	5·37	4·30	3·34	2·43	1·67	46·10	
TORORO	Total: ins. ..	1·46	5·56	5·50	14·05	9·63	8·22	3·82	3·70	4·56	4·26	4·83	4·87	70·39	Met. No. 89 3419
Bukedi	Days ..	13	12	11	21	16	16	9	9	13	8	16	13	157	
0° 42′ N.; 34° 10′ E.	Mean: ins. ..	2·07	2·64	5·45	8·80	8·70	4·07	3·92	4·71	4·12	4·71	4·04	3·09	56·32	
JINJA	Total: ins. ..	5·33	4·49	6·66	9·18	10·17	0·99	1·54	3·06	1·80	4·77	8·58	8·23	64·80	Met. No. 89 3343
Busoga	Days ..	16	10	12	20	18	5	5	10	9	6	21	14	146	
0° 28′ N.; 33° 11′ E.	Mean: ins. ..	3·13	2·12	4·74	7·53	4·81	1·95	2·54	3·56	3·64	6·65	5·88	3·18	49·73	
KABALE	Total: ins. ..	4·93	2·16	4·35	8·49	8·19	1·61	0·17	1·88	3·95	0·48	7·40	6·56	50·17	Met. No. 91 2900
Kigezi	Days ..	15	10	12	19	20	3	1	6	12	7	19	16	140	
1°15′S; 29° 59′E.	Mean: ins. ..	2·40	3·57	4·48	5·35	3·61	1·04	0·78	2·16	3·74	3·87	4·20	3·58	38·78	
MBARARA	Total: ins. ..	3·27	3·99	3·30	10·79	8·05	0·21	0·56	2·24	1·53	1·96	6·68	4·25	47·22	Met. No. 90 3003
Ankole	Days ..	13	14	11	16	14	2	1	6	10	10	15	18	130	
0° 37′ S.; 30° 39′ E.	Mean: ins. ..	1·72	2·45	3·81	4·79	3·18	1·00	0·83	2·42	3·84	4·18	4·48	3·03	35·73	
FORT PORTAL ..	Total: ins. ..	3·45	4·82	5·34	13·47	8·17	1·65	3·12	2·81	4·28	10·97	7·37	5·57	71·02	Met. No. 89 3002
Toro	Days ..	16	15	16	20	16	6	9	8	15	22	21	10	174	
0° 40′ N.; 30° 17′ E.	Mean: ins. ..	1·36	2·85	5·25	7·30	5·67	3·23	2·35	4·61	7·52	8·45	6·52	3·10	58·21	
BULINDI	Total: ins. ..	5·04	3·38	7·21	8·87	4·72	0·97	3·50	4·90	4·01	5·61	9·02	3·53	62·56	Met. No. 88 3106
Bunyoro	Days ..	12	8	13	13	10	5	6	8	8	—	18	6	119	
1° 28′ N.; 31° 28′ E.	Mean: ins. ..	1·35	2·30	4·22	6·85	5·21	3·55	3·45	6·25	6·51	5·32	4·28	2·21	51·50	
MASAKA	Total: ins. ..	3·90	4·08	5·74	10·16	10·40	3·89	1·76	1·63	2·94	7·12	9·33	3·93	64·28	Met. No. 90 3104
Masaka	Days ..	10	11	10	17	19	6	4	4	6	10	25	20	142	
0° 20′S.; 31° 44′ E	Mean: ins. ..	2·05	2·40	4·51	7·02	6·58	1·18	1·41	2·06	3·51	3·99	3·80	3·51	42·65	

KAKUMIRO ..	Total: ins. ..	4·73	3·34	3·11	8·12	6·35	1·73	2·84	0·76	4·78	4·56	8·17	2·82	51·31	Met. No. 89 3101
Mubende ..	Days ..	7	7	6	14	12	5	4	3	9	8	16	8	99	
0° 46′ N.; 31° 19′ E.	Mean: ins. ..	1·36	2·22	4·33	6·47	4·12	2·57	2·88	5·29	6·44	7·28	5·60	2·72	51·28	
SENDA	Total: ins. ..	3·34	1·72	8·77	5·30	4·72	3·23	0·94	3·11	1·63	5·08	6·63	5·86	50·33	Met. No. 89 3262
Mengo	Days ..	12	10	12	14	16	8	6	9	9	13	18	17	144	
0° 29′ N.; 32° 01′ E.	Mean: ins. ..	1·92	2·58	4·53	6·58	4·62	2·13	1·92	4·12	4·46	5·77	4·70	3·03	46·30	
KAMPALA	Total: ins. ..	6·39	3·67	4·37	9·41	5·36	0·56	0·64	3·69	1·57	2·31	17·68	7·31	62·68	Met. No. 89 3251
Mengo	Days ..	17	12	12	15	15	3	2	4	4	10	23	13	130	
0° 19′ N.; 32° 33′ E.	Mean: ins. ..	2·28	2·09	4·34	6·59	5·57	2·43	3·21	4·34	3·90	4·41	4·87	3·40	46·43	
ENTEBBE	Total: ins. ..	6·83	6·96	5·60	16·13	11·42	1·25	0·87	1·68	2·15	2·08	11·76	7·09	73·82	Met. No. 89 3266
Mengo	Days ..	18	14	12	20	18	5	3	5	8	8	23	16	150	
0° 03′ N.; 32° 27′ E.	Mean: ins. ..	3·92	3·40	6·56	11·04	10·13	3·86	2·55	3·60	3·44	4·25	5·74	4·95	63·44	

COTTON PRODUCTION: 1962/63 SEASON

Region and Zone	Acreages*		Sales (Tons of Seed Cotton)		Harvested Yield per Acre (lb. Seed Cotton)		Production (Bales of Lint)	
	Total 1962/63	Mean 1957/58–1961/62	Total 1962/63	Mean 1957/58–1961/62	Averages 1962/63	Mean 1957/58–1961/62	Total § 1962/63	Mean 1957/58–1961/62
Buganda—								
Mengo	182,000	246,000	28,674	36,563	354	333	49,837	62,321
Masaka	24,000	35,000	2,058	2,965	190	190	3,446	5,114
Mubende	72,000	71,000	8,119	9,355	252	295	14,211	15,949
Totals	278,000	353,000	38,851	48,884	313	310	67,484	83,386
Western—								
Bunyoro	51,000	54,000	6,096	5,139	268	213	10,778	8,673
Toro	20,000	32,000	4,179	4,408	464	309	7,290	7,711
Totals	71,000	87,000	10,275	9,547	324	246	18,068	16,384
Eastern—								
Busoga	467,000	406,000	52,088	51,362	250	283	92,762	88,585
Mbale	348,000	331,000	33,534	28,533	216	193	58,483	48,398
Teso	170,000	130,000	12,385	8,751	163	151	20,640	15,119
South Teso Segregated	29,000	39,000	4,617	3,635	352	209	7,592	6,064
Usuku	24,000	18,000	1,673	1,514	159	188	2,785	2,538
Totals	1,038,000†	924,000	104,297‡	93,793	225	227	182,262	160,703
Northern—								
Lango	191,000	201,000	24,716	19,008	290	212	40,432	32,162
East Acholi	92,000	69,000	8,515	7,167	207	233	13,602	12,205
West Acholi	70,000	57,000	9,002	7,159	289	281	14,546	11,916
West Nile	64,000	67,000	11,347	9,271	397	310	21,929	16,200
Totals	416,000†	393,000	53,580‡	42,606	288	243	90,509	72,483
UGANDA TOTALS	1,803,000	1,757,000	207,003	194,829	257	248	358,333	332,956

* Corrected to 1,000 acres.

† These figures do not agree with regional totals shown in Appendices III (*a*), III(*c*) and III(*e*) due to the fact that the boundaries of the zones listed under Eastern and Northern regions do not coincide with regional boundaries. The differences are compensating and the Uganda total agrees with that in Table III (*a*).

‡ Similarly, these figures do not agree with the regional totals in Table IV (*a*).

§ Excluding 198 bales from research stations.

COTTON PRODUCTION: 1963/64 SEASON

Monthly Plantings—Acres

Region and Zone	March	April	May	June	July	Aug.	Sept.	Total
Buganda—								
Mengo ..	—	—	3,859	51,014	55,088	50,408	4,298	164,667
Masaka ..	—	—	2,374	4,830	5,246	7,650	6,572	26,672
Mubende ..	—	—	1,291	10,306	28,220	25,713	4,516	70,046
Total ..	—	—	7,524	66,150	88,554	83,771	15,386	261,385
Western—								
Bunyoro ..	—	130	660	11,396	30,555	12,954	1,774	57,469
†Kazinga Channel ..	—	—	—	—	1,199	8,579	12,873	22,651
Total ..	—	130	660	11,396	31,754	21,533	14,647	80,120
Eastern—								
Busoga ..	—	17,771	105,423	166,755	149,455	68,621	1,972	509,997
*Mbale ..	9	6,885	56,652	108,066	94,343	46,846	7,241	320,042
*‡Teso ..	208	34,051	94,083	96,106	50,518	17,703	—	292,669
South Teso Segregated	14	3,939	13,404	11,411	4,362	4,473	—	37,603
Usuku ..	18	4,207	13,646	6,123	1,344	41	—	25,379
Total ..	249	66,853	283,208	388,461	300,022	137,684	9,213	1,185,690
Northern—								
‡§Lango ..	21	1,597	27,987	91,456	55,494	17,520	1,928	196,003
East Acholi ..	15	8,439	18,444	31,586	35,165	14,173	295	108,117
§West Acholi	—	307	4,352	25,620	31,068	8,973	649	70,969
West Nile/ Madi ..	—	—	239	30,049	44,439	30,813	6,418	111,958
Total ..	36	10,343	51,022	178,711	166,166	71,479	9,290	487,047
UGANDA TOTALS ..	285	77,326	342,414	644,718	586,496	314,467	48,536	2,014,242

Notes — * The Bukedea County of Teso has been transferred from Mbale Zone to the Teso Zone, from the 1963/64 season.

† Formerly the Toro Zone, to which has been added parts of Ankole and Kigezi districts.

‡ The Kaberamaido area of Teso District has been transferred to the Teso Zone from Lango Zone, from the 1963/64 season.

§ The Minakulu area of Lango District has been transferred to the Lango Zone from West Acholi Zone, from the 1963/64 season.

COTTON: MONTHLY PLANTINGS AS PERCENTAGES OF TOTAL

Region and Zone	April		May		June		July		August		September	
	1963/64	Mean 1958/59–1962/63	1963/64	Mean 1958/59–1962/63	1963/64	Mean 1958/59–1962/63	1963/64	Mean 1958/59–1962/63	1963/64	Mean 1958/59–1962/63	1963/64	Mean 1958/59–1962/63
Buganda—												
Mengo	—	—	2·3	3·3	31·0	30·5	33·5	41·5	30·6	21·8	2·6	2·9
Masaka	—	—	8·9	8·1	18·1	19·5	19·7	27·0	28·7	29·7	24·6	15·7
Mubende	—	—	1·8	2·7	14·7	21·4	40·3	44·5	36·7	29·0	6·4	2·4
Total ..	—	—	2·9	3·6	25·3	27·5	33·9	40·8	32·0	24·1	5·9	4·0
Western—												
Bunyoro	—	—	1·2	3·9	19·9	15·6	53·2	50·8	22·6	28·5	3·1	1·2
† Kazinga Channel	—	—	—	—	—	0·3	5·3	9·9	37·9	59·9	56·8	29·9
Total ..	—	—	0·9	2·6	14·2	10·3	39·7	36·6	26·9	39·3	18·3	11·2
Eastern—												
Busoga	3·5	0·7	20·7	19·6	32·7	31·9	29·3	31·5	13·4	15·3	0·4	1·0
† Mbale	2·1	2·1	17·7	16·0	33·8	31·8	29·5	32·3	14·6	16·5	2·3	1·3
† Teso	11·7*	6·4	32·1	36·4	32·8	29·2	17·3	22·3	6·1	5·7	—	—
South Teso Segregated	10·5	4·1	35·7	32·3	30·3	32·9	11·6	22·9	11·9	7·8	—	—
Usuku	16·6*	9·5	53·8	51·9	24·1	31·0	5·3	7·4	0·2	0·2	—	—
Total ..	5·6	2·3	23·9	21·9	32·8	31·5	25·3	29·6	11·6	13·8	0·8	0·9
Northern—												
† Lango	0·8	0·9	14·3	11·8	46·7	39·4	28·3	34·9	8·9	12·1	1·0	0·9
East Acholi	7·8	0·8	17·1	14·0	29·2	34·3	32·5	34·3	13·1	15·2	0·3	1·4
† West Acholi	0·4	0·1	6·1	6·7	36·1	34·7	43·8	41·5	12·7	15·9	0·9	1·1
West Nile/Madi	—	—	0·2	1·9	26·8	24·2	39·7	46·8	27·5	23·5	5·7	3·6
Total ..	2·1	0·6	10·5	9·7	36·7	35·2	34·1	37·8	14·7	15·2	1·9	1·5
UGANDA TOTALS ..	3·9	1·4	17·0	14·8	32·0	30·6	29·1	33·9	15·6	17·2	2·4	2·1

* Includes March planting.

† Due to the alteration in the boundaries noted in Appendix II (*b*) the 1963/64 figures for these zones are not strictly comparable with the means for 1958/59 to 1962/63.

COTTON PRODUCTION

Number of Bales of 400 lb., 1907-1963

(*Note : All figures are corrected to 1,000 bales*)

Season	Bales (Actual)	Bales (5-year average)	Season	Bales (Actual)	Bales (5-year average)
1907	2,000	—	1935/36 ..	316,000	321,000
1908	4,000	—	1936/37 ..	332,000	325,000
1909	5,000	9,000	1937/38 ..	418,000	335,000
1910	12,000	13,000	1938/39 ..	307,000	344,000
1911	20,000	21,000	1939/40 ..	300,000	326,000
1912/13 ..	26,000	25,000	1940/41 ..	365,000	264,000
1913/14 ..	40,000	27,000	1941/42 ..	238,000	241,000
1914/15 ..	26,000	28,000	1942/43 ..	112,000	236,000
1915/16 ..	22,000	29,000	1943/44 ..	191,000	208,000
1916/17 ..	28,000	26,000	1944/45 ..	272,000	207,000
1917/18 ..	27,000	30,000	1945/46 ..	227,000	218,000
1918/19 ..	36,000	44,000	1946/47 ..	231,000	258,000
1919/20 ..	47,000	48,000	1947/48 ..	170,000	272,000
1920/21 ..	81,000	60,000	1948/49 ..	391,000	295,000
1921/22 ..	48,000	78,000	1949/50 ..	339,000	325,000
1922/23 ..	88,000	108,000	1950/51 ..	346,000	355,000
1923/24 ..	128,000	128,000	1951/52 ..	380,000	357,000
1924/25 ..	196,000	145,000	1952/53 ..	320,000	349,000
1925/26 ..	180,000	155,000	1953/54 ..	398,000	352,000
1926/27 ..	134,000	170,000	1954/55 ..	300,000	351,000
1927/28 ..	138,000	156,000	1955/56 ..	364,000	357,000
1928/29 ..	204,000	157,000	1956/57 ..	372,000	358,000
1929/30 ..	125,000	173,000	1957/58 ..	351,000	370,000
1930/31 ..	189,000	204,000	1958/59 ..	401,000	371,000
1931/32 ..	207,000	220,000	1959/60 ..	360,000	333,000
1932/33 ..	295,000	246,000	1960/61 ..	370,000	334,000
1933/34 ..	286,000	271,000	1961/62 ..	181,000	—
1934/35 ..	253,000	296,000	1962/63 ..	359,000	—

CROP PRODUCTION

Estimated Acreages under Crops, 1962 and 1963—African Cultivation

(*Thousand Acres*)

Crop	Buganda		Eastern		Northern		Western		Total	
	1962	1963	1962	1963	1962	1963	1962	1963	1962	1963
Beans (Mixed and Cowpeas) ..	153·4	157·3	190·9	173·6	218·1	237·3	114·9	112·7	677·3	680·9
Beans (Soya)	2·0	0·3	—	—	—	—	0·4	0·2	2·4	0·5
Cassava	69·3	71·8	249·8	213·0	247·9	348·9	85·6*	72·3	652·6*	706·0
Cocoa	0·2	0·3	†	†	—	—	†	†	0·2	0·3
Coffee (Arabica)	1·6	1·6	24·5	24·5	1·5	1·5	13·0†	14·6	40·6†	42·2
Coffee (Robusta)	538·0	561·8	7·3	10·0	0·4	0·4	15·3	16·2	561·0	588·4
Cotton	277·9	261·4	1,061·6	1,188·7	392·9	484·0	71·1	80·1	1,803·5	2,014·2
Grams	4·3	0·7	4·3	4·1	0·5	2·2	—	—	9·1	7·0
Groundnuts	143·2	104·8	314·3	312·7	122·9	138·5	35·3	33·4	615·7	589·4
Maize	169·7	87·1	142·3	175·5	51·8	66·8	58·5	65·0	422·3	394·4
Millet (Sorghum)	60·2	82·1	291·3	263·1	220·8	188·3	152·7	198·1	725·0	731·6
Millet (Finger)	28·5	14·8	778·0	774·5	383·6	398·5	116·5	116·4	1,306·6	1,304·2
Millet (Bulrush)	—	—	2·5	2·5	—	—	—	—	2·5	2·5
Onions	—	—	—	—	—	—	2·3	2·6	2·3	2·6
Peas (Pigeon)	—	—	0·4	2·5	145·6	169·1	0·2	—	146·2	171·6
Peas (Field)	—	—	—	—	—	—	24·7	38·8	24·7	38·8
Plantains	510·1	535·1	482·9	542·9	7·5	19·3	602·8	645·5	1,603·3	1,742·8
Potatoes (Sweet)	90·9	119·3	218·1	161·7	173·3	172·2	144·6	132·6	626·9	585·8
Potatoes (Solanum)	—	—	0·3	0·3	—	—	5·1	5·7	5·4	6·0
Rice	—	—	0·7	1·5	3·9	1·8	3·3	0·1	7·9	3·4
Sim-sim	3·4	5·8	13·4	12·1	185·9	193·1	3·4	3·9	206·1	214·9
Tobacco (Fire-cured)	0·3	0·3	—	—	1·5	1·4	6·9	9·8	7·8	11·5
Tobacco (Flue-cured)	—	—	—	—	1·5	2·2	0·6	0·5	2·1	2·7
Tea	—	1·2	—	—	—	—	0·8	1·6	0·8	2·8
Total ..	2,053·0	2,005·7	3,782·6	3,863·2	2,159·6	2,425·5	1,457·1	1,550·1	9,452·3	9,844·5

* Under fifty acres.

† Revised acreage.

(All figures corrected to nearest 100 acres).

CROP PRODUCTION

Estimated Acreages under Crops, 1962 and 1963—African Cultivation

BUGANDA REGION

(*Thousand Acres*)

Crop	Mengo		Masaka		Mubende		Total	
	1962	1963	1962	1963	1962	1963	1962	1963
Beans (Mixed) ..	86·8	94·6	46·9	49·0	19·7	13·7	153·4	157·3
Beans (Soya)	2·0	0·2	—	0·1	—	—	2·0	0·3
Cassava	55·8	62·2	7·1	4·4	6·4	5·2	69·3	71·8
Cocoa	0·2	0·3	*	*	*	—	0·2	0·3
Coffee (Arabica) ..	0·6	0·6	1·0	1·0	—	—	1·6	1·6
Coffee (Robusta) ..	365·3	368·0	154·8	171·1	17·9	22·7	538·0	561·8
Cotton	233·5	216·2	24·2	26·7	20·2	18·5	277·9	261·4
Grams	0·6	—	—	—	3·7	0·7	4·3	0·7
Groundnuts	75·9	74·2	52·4	18·7	14·9	11·9	143·2	104·8
Maize	120·5	63·3	39·2	17·5	10·0	6·3	169·7	87·1
Millet (Sorghum) ..	31·9	40·4	20·9	34·5	7·4	7·2	60·2	82·1
Millet (Finger) ..	19·9	10·2	0·8	0·7	7·8	3·9	28·5	14·8
Plantains	334·8	319·9	154·4	183·8	20·9	31·4	510·1	535·1
Potatoes (Sweet) ..	62·9	97·9	14·2	9·7	13·8	11·7	90·9	119·3
Sim-sim	3·0	5·8	—	—	0·4	—	3·4	5·8
Tobacco (Fire-cured) ..	—	—	—	—	0·3	0·3	0·3	0·3
Tea	—	—	—	0·6	—	0·6	—	1·2
Total ..	1,393·7	1,353·8	515·9	517·8	143·4	134·1	2,053·0	2,005·7

* Under fifty acres.

(All figures corrected to the nearest 100 acres).

CROP PRODUCTION

Estimated Acreages under Crop 1962 and 1963—African Cultivation

EASTERN REGION

(*Thousand Acres*)

Crop	Busoga		Bukedi		Bugisu		Teso		Karamoja		Total	
	1962	1963	1962	1963	1962	1963	1962	1963	1962	1963	1962	1963
Beans (Mixed and Cowpeas) ..	22·1	—	41·1	33·6	30·3	46·6	97·0	93·0	0·4	0·4	190·9	173·6
Cassava	41·4	41·9	89·0	70·6	17·8	18·9	101·4	81·3	0·2	0·3	249·8	213·0
Cocoa	*	*	—	—	—	—	—	—	—	—	*	*
Coffee (Arabica)	—	—	—	—	24·5	24·5	*	—	—	—	24·5	24·5
Coffee (Robusta)	7·3	10·0	—	—	—	—	—	—	—	—	7·3	10·0
Cotton	467·3	510·0	213·8	253·0	60·3	67·4	318·1	355·5	2·1	2·8	1,061·6	1,188·7
Grams	—	—	—	—	—	—	4·3	4·1	—	—	4·3	4·1
Groundnuts	106·5	100·8	69·0	66·6	10·2	14·0	127·7	130·2	0·9	1·1	314·3	312·7
Maize	51·6	67·2	26·8	22·7	49·5	69·4	9·1	10·9	5·3	5·3	142·3	175·5
Millet (Sorghum)	2·6	2·3	19·4	26·2	10·4	11·0	153·9	118·6	105·0	105·0	291·3	263·1
Millet (Finger)	115·1	136·6	197·2	178·2	97·8	76·5	365·9	381·2	2·0	2·0	778·0	774·5
Millet (Bulrush)	—	—	—	—	—	—	—	—	2·5	2·5	2·5	2·5
Peas (Pigeon)	—	—	—	—	—	—	—	2·2	0·4	0·3	0·4	2·5
Plantains	198·7	222·6	32·3	43·0	250·1	276·1	1·8	1·1	*	0·1	482·9	542·9
Potatoes (Sweet)	80·0	50·9	31·0	27·8	24·9	14·4	81·9	68·1	0·3	0·5	218·1	161·7
Potatoes (Solanum)	—	—	—	—	0·3	0·3	—	—	—	—	0·3	0·3
Rice	0·2	—	0·3	1·1	—	—	0·2	0·4	—	—	0·7	1·5
Sim-sim	2·9	—	0·7	0·8	*	—	8·5	9·3	1·3	2·0	13·4	12·1
Total ..	1,095·7	1,142·3	720·6	723·6	576·1	619·1	1,269·8	1,255·9	120·4	122·3	3,782·6	3,863·2

* Under fifty acres

(All figures corrected to nearest 100 acres)

CROP PRODUCTION

Estimated Acreages under Crops, 1962 and 1963—African Cultivation

WESTERN REGION

(*Thousand Acres*)

Crop	Ankole		Bunyoro		Kigezi		Toro		Total	
	1962	1963	1962	1963	1962	1963	1962	1963	1962	1963
Beans (Mixed and Cowpeas) ..	21·7	23·8	17·7	13·5	46·7	46·4	28·8	29·0	114·9	112·7
Beans (Soya)	0·2	—	—	—	—	—	0·2	0·2	0·4	0·2
Cassava	12·3	10·7	29·8	21·0	3·3†	3·6	40·2	37·0	85·6†	72·3
Coffee (Arabica)	4·6†	4·9	0·3	0·4	3·6†	3·7	4·5	5·6	13·0†	14·6
Coffee (Robusta)	7·5	7·5	1·6	2·1	1·4	1·4	4·8	5·2	15·3	16·2
Cotton	—	0·6	50·9	57·5	—	*	20·2	22·0	71·1	80·1
Grams	—	—	—	—	—	—	—	—	—	—
Groundnuts	12·8	11·7	9·5	6·9	5·4	8·9	7·6	5·9	35·3	33·4
Maize	6·2	6·5	15·9	10·7	23·3	25·2	13·1	22·6	58·5	65·0
Millet (Sorghum)	10·4	16·6	4·2	4·4	136·9	166·1	1·2	11·0	152·7	198·1
Millet (Finger)	44·0	53·2	11·5	9·8	40·1	36·5	20·9	16·9	116·5	116·4
Onions	0·8	0·8	0·3	0·2	0·4	0·3	0·8	1·3	2·3	2·6
Peas (Field)	4·0	5·9	1·0	—	16·1	29·3	3·6	3·6	24·7	38·8
Peas (Pigeon)	—	—	—	—	—	—	0·2	—	0·2	—
Plantains	389·3	390·6	20·0	34·1	98·6	117·7	94·9	103·1	602·8	645·5
Potatoes (Sweet)	19·1	27·6	20·2	13·5	81·5	78·9	23·8	12·6	144·6	132·6
Potatoes (Solanum)	0·3	0·4	*	0·1	4·3	4·8	0·5	0·4	5·1	5·7
Rice	—	—	—	—	—	—	3·3	0·1	3·3	0·1
Sim-sim	*	*	3·0	2·6	—	—	0·4	1·3	3·4	3·9
Tobacco (Fire-cured)	—	—	4·9	6·5	0·8	0·7	0·3	2·6	6·0	9·8
Tobacco (Flue-cured)	—	—	—	—	0·6	0·5	—	—	0·6	0·5
Tea	0·1	0·2	—	*	0·2	0·2	0·6	1·2	0·8	1·6
Total ..	533·3	561·0	190·8	183·3	463·2	524·2	269·9	281·6	1,457·1	1,550·1

* Under fifty acres.

† Revised acreage.

(All figures corrected to nearest 100 acres).

CROP PRODUCTION

Estimated Acreages under Crops, 1962 and 1963—African Cultivation

NORTHERN REGION

(*Thousand Acres*)

Crop	Lango		Acholi		West Nile/Madi		Total	
	1962	1963	1962	1963	1962	1963	1962	1963
Beans (Mixed and Cowpeas) ..	99·9	96·3	35·1	55·4	83·1	85·6	218·1	237·3
Cassava	68·7	63·7	63·0	47·5	116·2	237·7	247·9	348·9
Coffee (Arabica)	—	—	—	—	1·5	1·5	1·5	1·5
Coffee (Robusta)	—	—	—	—	0·4	0·4	0·4	0·4
Cotton	173·0	196·0	155·8	176·0	64·1	112·0	392·9	484·0
Grams	0·4	*	—	—	0·1	2·2	0·5	2·2
Groundnuts	39·5	40·7	49·6	54·1	33·8	43·7	122·9	138·5
Maize	14·8	19·1	8·9	24·5	28·1	23·2	51·8	66·8
Millet (Sorghum)	133·7	107·1	63·0	63·5	24·1	17·7	220·8	188·3
Millet (Finger)	120·4	167·2	135·6	153·3	127·6	78·0	383·6	398·5
Millet (Bulrush)	—	—	—	—	—	—	—	—
Peas (Pigeon)	103·2	136·4	33·8	25·9	8·6	6·8	145·6	169·1
Plantains	5·3	5·9	1·2	5·0	1·0	8·4	7·5	19·3
Potatoes (Sweet)	60·1	62·7	45·3	48·8	67·9	60·7	173·3	172·2
Rice	2·2	1·3	0·2	0·1	1·5	0·4	3·9	1·8
Sim-sim	85·4	67·0	88·7	90·7	11·8	35·4	185·9	193·1
Tobacco (Fire-cured) ..	—	*	—	—	1·5	1·4	1·5	1·4
Tobacco (Flue-cured) ..	*	*	0·5	0·6	1·0	1·6	1·5	2·2
Total ..	906·6	963·4	680·7	745·4	572·3	716·7	2,159·6	2,425·5

* Under fifty acres.

(All figures corrected to the nearest 100 acres).

Region/District	Robusta Coffee†		Arabica Coffee†		All Coffee†	Se (196
	Quantity Clean Equivalent *Tons*	Value £	Quantity Clean Equivalent *Tons*	Value £	Value £	Quant *Ton*
Eastern—						
Busoga	2,844	295,662	—	—	295,662	52,08
Bugisu/Sebei	—	—	6,933	1,763,541	1,763,541	4,3
Bukedi	—	—	—	—	—	16,3
Teso	—	—	—	—	—	33,6
Karamoja	—	—	—	—	—	1
Total ..	2,844	295,662	6,933	1,763,541	2,059,203	106,5
Northern—						
Lango	—	—	—	—	—	23,1
Acholi	—	—	—	—	—	16,8
W. Nile/Madi	22	2,592	223	47,873	50,465	11,3
Total ..	22	2,592	223	47,873	50,465	51,3
Western—						
Bunyoro	1,129	160,686	—	—	160,686	6,0
Toro	1,163	150,098	484	91,578	241,676	4,1
Kigezi	612	62,228	284	54,805	117,033	—
Ankole	4,873	502,589	899	166,384	668,973	
Total ..	7,777	875,601	1,667	312,767	1,188,368	10,2
Buganda—						
Mengo	142,461	15,394,932	261	89,334	15,484,266	34,5
Masaka			—	—	—	2,0
Mubende			—	—	—	2,2
Total ..	142,461	15,394,932	261	89,334	15,484,266	38,8
UGANDA TOTAL ..	153,104	16,568,787	9,084	2,213,515	18,782,302	207,0

Note.—Crops included in this table are those for which quantities marketed and value considerable quantities are marketed are not included as reliable estimates of sales and value

All figures given to nearest long ton and £.

† Production of coffee formerly shown as estate production is now included in this ta

* Where growers process their own coffee to an intermediate or final form the value of

ION
ted Values, 1963
*to Growers)**

Cotton Season)	Tobacco: Flue-cured (Cured Leaf)		Tobacco: Flue-cured (Green Leaf)		Tobacco: Fire-cured (Cured Leaf)		All	Total Value	
Value	Quantity	Value	Quantity	Value	Quantity	Value	Value	1962	1963
£	*Tons*	£	*Tons*	£	*Tons*	£	£	£	£
3,055,067	—	—	—	—	—	—	—	1,668,527	3,280,729
253,054	—	—	—	—	—	—	—	2,052,525	2,016,585
949,985	—	—	—	—	—	—	—	352,073	949,985
2,003,351	—	—	—	—	—	—	—	354,494	2,003,351
10,588	—	—	—	—	—	—	—	6,716	10,588
6,272,045	—	—	—	—	—	—	—	4,434,335	8,331,248
1,410,455	1	286	—	—	—	—	286	642,276	1,410,741
1,031,587	107	30,496	—	—	—	—	30,496	602,342	1,062,083
700,656	451	128,851	537	5,707	361	41,245	175,803	508,553	926,924
3,142,098	559	159,633	537	5,707	361	41,245	206,585	1,753,171	3,399,748
363,176	—	—	—	—	948	114,471	114,471	331,503	638,333
252,722	—	—	—	—	—	—	—	618,873	494,398
—	—	—	447	13,231	—	—	13,231	131,603	130,264
1,289	—	—	—	—	—	—	—	602,800	70,262
617,187	—	—	447	13,231	948	114,471	127,702	1,684,779	1,933,257
2,140,095	—	—	—	—	—	—	—	12,260,974	17,888,904
118,822	—	—	—	—	—	—	—		
141,446	—	—	—	—	38	4,275	4,275		
2,400,363	—	—	—	—	38	4,275	4,275	12,260,974	17,888,904
12,432,293	559	159,633	984	18,938	1,347	159,991	338,562	20,133,259	31,553,157

e known with reasonable accuracy. Crops such as maize, groundnuts, of which not available.

n processing is included in the price paid.

Article	Unit	Quantities			Value in £		
		1961	1962	1963	1961	1962	1963
Oilseeds and Products :							
Cotton Seed	*Tons*	—	—	—	—	—	—
Castor Seed	*Tons*	1,720	2,581	2,505	93,819	112,941	103,653
Groundnuts	*Tons*	9,179	7,247	3,500	542,201	345,066	184,208
Sesame Seed	*Tons*	875	1,110	893	53,548	79,994	60,738
Sunflower Seed	*Tons*	67	20	87	2,065	933	3,658
Cotton Seed Cake	*Tons*	62,166	28,622	67,518	1,314,639	681,158	1,512,398
Cotton Seed Oil	*Tons*	197	54	862	27,833	7,211	88,354
Groundnut Oil	*Tons*	52	39	2	6,704	5,520	200
Other Vegetable Oils	*Tons*	53	3	7	7,437	410	928
Other Oilseed Cake, Meals and other Vegetable Oil Residue	*Tons*	3,896	6,487	1,842	98,167	175,448	52,637
Fibres :							
Cotton, raw	*Tons*	62,197	32,233	58,790	16,716,472	8,259,722	14,329,593
Sisal	*Tons*	566	454	343	43,309	36,402	44,229
Beverage Crops and Tobacco :							
Coffee, not roasted	*Tons*	103,187	130,944	145,219	13,978,591	20,173,957	27,181,325
Tea	*Tons*	3,794	5,182	5,405	1,472,083	1,996,980	2,040,672
Unmanufactured Tobacco	*Tons*	20	*	4	4,574	23	1,016
Spices and Drugs :							
Chillies	*Tons*	338	526	426	81,417	91,643	51,344
Papain	*Tons*	3	7	56	3,523	16,042	113,563
Vanilla	*Tons*	3	1	1	12,515	4,925	4,444
Beans and Pulses :							
Soya Beans	*Tons*	376	13	65	12,391	381	2,110
Others	*Tons*	2,744	550	1,502	76,302	18,788	41,940
Cereals :							
Maize (unmilled)	*Tons*	—	4,323	4,154	—	66,652	80,680
Maizemeal	*Tons*	753	5,637	4,056	10,947	100,376	68,194
Other (unmilled)	*Tons*	1	405	—	28	12,330	—
Miscellaneous :							
Rubber	*Tons*	—	3	—	—	315	—
Ethyl Alcohol	*Imp. Gal.*	4,119	3,825	4,168	1,359	1,316	1,426
Sugar	*Tons*	329	11	5,030	17,219	679	291,656
	Total £				34,577,153	32,189,212	46,258,966

Source : East African Customs and Excise Annual Trade Reports, 1961, 1962 and 1963.
* Under ½ ton.

EXPORTS OF AGRICULTURAL PRODUCE TO KENYA AND TANGANYIKA 1963 APPENDIX V (*b*)

Article	Unit	Quantities			Value in £		
		To Kenya	To Tanganyika	Total	To Kenya	To Tanganyika	Total
Oilseeds and Products :							
Cotton Seed Cake	*Tons*	1,379	—	1,379	18,826	—	18,826
Other Oilseed Cakes, Meals and Other Vegetable Oil Residue	*Tons*	1,058	—	1,058	26,473	—	26,473
Sesame Seed	*Tons*	2	*	2	150	7	157
Groundnuts	*Tons*	68	123	191	3,229	5,187	8,416
Cotton Seed Oil	*Tons*	6,168	908	7,076	658,352	94,598	752,950
Groundnut Oil	*Tons*	124	15	139	12,239	1,365	13,604
Other Vegetable Oils	*Tons*	10	*	10	1,188	42	1,230
Beverage Crops and Tobacco :							
Coffee, not roasted	*Tons*	257	—	257	24,495	—	24,495
Tea	*Tons*	207	4	211	64,970	1,606	66,576
Unmanufactured Tobacco	*lb.*	1,987,283	935,568	2,922,851	350,622	98,580	449,202
Cigars, Cheroots and Manufactured Tobacco	*lb.*	892	231	1,123	711	184	895
Spices :							
Chillies	*Tons*	23	1	24	1,687	74	1,761
Others	*Tons*	122	71	193	19,754	7,428	27,182
Fibres :							
Cotton Linters	*Tons*	8	1	9	738	74	812
Sisal	*Tons*	—	—	—	—	—	—
Cereals :							
Maize (unmilled)	*Tons*	736	10,923	11,659	11,873	176,353	188,226
Millet	*Tons*	436	1,592	2,028	10,696	40,953	51,649
Other	*Tons*	2	—	2	75	—	75
Pulses :							
Beans, Peas and Lentils	*Tons*	653	416	1,069	17,156	9,980	27,136
Miscellaneous :							
Rubber	*Tons*	23	—	—	3,699	—	3,699
Ethyl Alcohol	*Imp. Gal.*	9,211	38,619	47,830	2,984	12,212	15,196
Sugar	*Tons*	40,273	—	40,273	1,836,309	—	1,836,309
Jaggery	*Tons*	1	1	2	59	72	131
Molasses	*Tons*	235	—	235	1,162	—	1,162
				Total £	3,067,447	448,715	3,516,162

Source : East African Customs and Excise Annual Trade Reports, 1961, 1962 and 1963.
* Under ½ ton.

CROP PRODUCTION, UGANDA

Plantation Crop Production, 1962 and 1963

Crop	Production Unit	Estimated Acreages		Estimated Production			
				Quantity		Value	
		1962	1963	1962	1963	1962	1963
				(*Tons*)	(*Tons*)	£	£
Sugar	Estates ..	39,473	38,460	104,310	122,044	4,628,586	5,451,481
	Outgrowers..	1,765	4,880				
Tea ..	Estates ..	20,090	22,494	6,195	6,072	2,385,075	2,292,484
	Outgrowers..	959	1,785				
Sisal	Estates ..	6,000	2,500	415	365	18,000	40,000
Cocoa	Smallholdings	209	409	*	*	—	—

* Production not started.

Note.—Coffee estates are no longer classified separately, and production is now included in Appendix IV.

PRICES PAID TO FARMERS—1963

Cents per lb.

Produce	Centres	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
*Beans	Kampala	20½	—	—	20	20	20	20	—	20	20	20	20
	Iganga ..	20	20	20	20	20	20	18	18	18	20	20	20
	Soroti ..	25	21	23	20	22	20	20	22	22	22	21	23
	Fort Portal	20	—	20	26	21	22	20	18	21	23	23	20
*Dried Cassava ..	Kampala	—	—	—	14	13	—	—	10	10	10	10	—
	Iganga ..	—	—	—	—	—	—	—	10	10	25	10	10
	Soroti ..	—	—	—	—	—	—	10	10	11	20	10	12
	Fort Portal	15	—	12	—	—	—	10	—	—	15	—	—
*Shelled Groundnuts	Kampala	48	50	44	45	45	40	37	40	40	40	46	52
	Iganga ..	45	55	50	50	42	40	35	35	38	40	40	50
	Soroti ..	48	50	50	52	45	50	45	40	43	42	43	51
	Fort Portal	50	52	40	45	45	56	50	40	41	45	50	52
* Unshelled Groundnuts ..	Kampala	25	30	29	28	27	—	21	24½	25½	25	26	29
	Iganga ..	27	35	35	30	25	25	20	23	22	22	23	30
	Soroti ..	30	35	34	34	30	25	27	25	25	25	27	28
	Fort Portal	—	25	25	25	25	28	—	—	—	—	—	—
Maize	Kampala	11	10	13½	13½	13	12½	11½	12½	17	18	17	18
	Iganga ..	9	8½	9	10½	10½	11	10½	10½	15	14	15	15
	Soroti ..	13	12	13	15	13	12	12	15	18	18	18	17
	Fort Portal	10	10	11	14	12	15	15	10	19	17	15	—
* Sorghum ..	Kampala	35	20	20	20	18	15	16	15	22	21	17	19
	Iganga ..	25	20	22	25	20	20	15	15	15	15	15	17
	Soroti ..	—	12	—	12	12	12	15	—	—	—	—	—
	Fort Portal	—	—	—	—	—	—	—	—	—	—	15	—
* Finger Millet ..	Kampala	25	22½	24½	23	23	20	20	21	21½	22	22	24
	Iganga ..	20	20	20	20	20	20	20	20	20	20	20	22
	Soroti ..	25	27	25	26	23	20	20	21	22	21	23	26
	Fort Portal	24	18	18	22	20	20	18	20	21	20	20	—

Onions	Kampala	—	35	35	42	—	40	—	40	45	35	35	30
	Iganga ..	40	35	35	35	35	40	45	45	40	35	35	40
	Soroti ..	—	—	40	37	30	40	60	50	40	40	30	40
	Fort Portal	40	25	—	—	—	—	45	35	30	37	30	25
Peas	Kampala	36	31	31	25	—	—	25	25	25	24	25	23
	Iganga ..	30	20	25	20	25	25	25	25	22	25	22	25
	Soroti ..	22	25	25	25	22	25	26	30	25	22	20	23
	Fort Portal	50	22	—	—	35	37	—	—	—	—	25	35
Solanum Potatoes ..	Kampala	—	15	15	22	—	12	—	22	19	20	15	15
	Iganga ..	10	15	15	15	15	10	15	15	15	25	22	15
	Soroti ..	—	20	15	15	12	15	15	25	15	20	—	—
	Fort Portal	20	17	—	—	—	—	15	15	10	15	15	13
* Sim-sim	Kampala	58	58	59	57	57	52	52½	53	52	50	51	52
	Iganga ..	50	50	50	50	50	50	45	45	45	45	46	50
	Soroti ..	55	—	54	55	52	50	50	55	50	45	50	45
	Fort Portal	50	50	50	50	50	55	—	50	50	50	50	—
Castor Seed ..	Kampala	29	27	27	30	—	32	—	30	33	31½	53	31
	Iganga ..	20	20	20	20	20	20	20	20	20	20	20	25
	Soroti ..	—	—	—	—	—	12	10	—	—	—	—	—
	Fort Portal	21	20	20	22	21	23	21	21	22	22	25	22

Note.—1. These prices are based on mid-monthly reports of the prices offered by traders for " reasonable quantities " of produce of fair average quality; these may vary considerably from prices in purely local markets which are the major outlets for many farmers.

2. The minimum prices permitted to be paid to farmers by holders of Controlled Produce Licences during the buying season from 1.1.63 to 30.6.63 for produce marked * were :—

	cents per lb.
Finger Millet—	
(*a*) In Buganda and Eastern Region	20
(*b*) In other areas of Uganda ..	18
Beans	20
Dried Cassava	12
Shelled Groundnuts	40
Unshelled Groundnuts	25
Sorghum	12
Sim-sim	40

and during the buying season 1.7.63 — 31.12.63 :—

	cents per lb.
Finger Millet—	
(*a*) In Buganda and Eastern Region	20
(*b*) In other areas of Uganda ..	18
Beans—	
(*a*) In Mengo District	20
(*b*) In other areas of Uganda ..	18
Dried Cassava	10
Shelled Groundnuts	32
Unshelled Groundnuts	20
Sorghum	15
Sim-sim	40

Region/District	Total area	Area of land excluding open water, swamps and reserved swamp	Cultivated area	Population*	Population Density	Cultivated land per head of population	Estimated available land per head of population	Ratio of available land to cultivated land
	Sq. miles	*Sq. miles*	*1,000 acres*		*Per sq. mile*	*Acres*	*Acres*	
Buganda—								
Mengo	14,417	9,221	1,240	1,451,000	157	0·9	4·1	4·8
Masaka	7,978	3,649	466	486,000	133	0·9	4·8	5·0
Mubende	2,701	2,570	107	106,000	41	1·0	15·5	15·4
TOTAL ..	25,096	15,440	1,813	2,043,000	132	0·9	4·8	5·5
Eastern—								
Busoga	6,940	3,133	686	718,000	229	1·0	2·8	2·9
Bugisu and Mbale Township ..	1,677	1,170	569	391,000	334	1·5	1·9	1·3
Bukedi	1,786	1,533	784	424,000	276	1·9	2·3	1·3
Teso	4,954	4,249	932	470,000	111	2·0	5·8	2·9
Karamoja	9,230	8,094	119	189,000	23	0·6	27·4	43·5
TOTAL ..	24,587	18,179	3,090	2,192,000	121	1·4	5·3	3·8
Northern—								
Acholi	10,854	10,347	617	311,000	30	2·0	21·3	10·7
Lango	5,054	4,333	755	385,000	89	2·0	7·2	3·7
West Nile/Madi ..	6,051	5,252	832	470,000	89	1·8	7·2	4·0
TOTAL ..	21,959	19,932	2,204	1,166,000	58	1·9	10·9	5·8
Western—								
Bunyoro	5,935	4,025	189	132,000	33	1·4	19·5	13·6
Toro	5,233	3,920	109	381,000	97	0·3	6·6	23·0
Ankole	6,276	5,378	190	577,000	107	0·3	6·0	18·1
Kigezi	2,039	1,689	482	527,000	312	0·9	2·1	2·2
TOTAL	19,483	15,012	970	1,617,000	108	0·6	5·9	9·9
UGANDA TOTALS	91,125	68,563	8,077	7,018,000	102	1·2	6·3	5·4

* Estimates for January, 1963, based on 1959 Census of Population and inter-censal rates of growth. This calculation does not take into account internal migration between districts. Figures are given to the nearest thousand.

PRINCIPAL AGRICULTURAL LEGISLATION

Subject	Act	Legal Notice	Title	Object
Coffee	14	—	The Coffee Act	An Act to make further and better provision for the marketing, processing and export of coffee.
	29	—	The Coffee (Amendment) Act ..	An Act to amend the Coffee Act.
	—	71	The Cess (Processed Coffee) Order	Fixing the rate of cess payable on all processed coffee.
	—	79	The Cess (Processed Coffee) (Payment and Collection) Rules ..	Fixing the method of payment and collection of cess.
	—	300	The Coffee (Certificates of Origin) Rules	Certificates of Origin required for consignments of coffee for export.
	—	230	The Coffee (Control of Exports) Rules	Ability of the Board to prohibit exports if coffee quota likely to be exceeded.
	—	302	The Coffee (Sales & Grading) Rules	Fixing the grades for processed coffee.
	—	54	The Coffee Export Duty (Variation of Schedules) Order	Revising the rate of export duty.
	30	—	The Bugisu Coffee (Amendment) Act	An Act to amend the Bugisu Coffee Ordinance, 1962.
	—	19	Appointment of Trustee	—
Cotton	68	—	The Cotton (Amendment) Act ..	An Act to amend the Cotton Ordinance, 1952.
	11	—	The Cotton Cess Act	An Act to impose a cess on lint cotton.
	51	—	The Cotton Price Assistance ..	An Act to make special provision for and in connection with the use of the Cotton Price Assistance Fund, 1959.
	—	296	The Cotton (Amendment) Rules ..	Rules to amend the Cotton Rules, 1960.
	—	334	Declaration of Segregated Areas ..	Declaring Buruli, N. & S. Bugerere Segregated areas.
	—	299	The Specified Percentage (Variation)	Varying the co-operative ginning percentages.
	—	53	The Cotton Cess (Payment and Collection) Rules	Fixing the method of payment and collection of cess.
	—	55	The Cotton Cess Order	Fixing the rate of cess on lint cotton.

DEPARTMENT OF AGRICULTURE

STAFF POSTINGS AS AT 31st DECEMBER, 1963

A. ADMINISTRATIVE AND EXTENSION SERVICES

Title	*Name*	*Station*
Commissioner for Agriculture ..	W. V. Rose	Entebbe
Deputy Commissioner for Agriculture	D. J. Parsons, M.C.	Entebbe
Assistant Commissioners for Agriculture	H. R. Berunga, M.B.E. ..	Entebbe
	J. M. Byagagaire	Entebbe
	G. R. W. Onaba	Entebbe
Assistant Commissioners for Agriculture (Field)	G. L. Kigundu, M.B.E. ..	Buganda
	J. S. Laker	Eastern Region
Senior Agricultural Officers ..	S. M. N. Kijambu	Northern Region
	R. G. Hampson, D.F.C. ..	Western Region
Chief Agricultural Development Officer	P. Evan-Jones, M.B.E. ..	Namalere
Agricultural Officers	S. S. M. K. Sengendo ..	Mubende
	P. Sibyetekerwa	Bugisu/Sebei
	F. J. Luswata	Bukedi
	E. Odeke	Busoga
	J. C. Ssozi	Acholi
	A. G. Ouseley-Smith ..	West Nile
	G. S. K. Byakika	Kigezi
	P. F. Kunya	Ankole
	D. J. Odanga	Toro
	V. Kirabokyamaria	Bunyoro
	T. M. Othieno	On Makerere Course
	L. M. A. Nyakana	On Overseas Course
	C. Biryomunsi	On Overseas Course
	A. R. Dunbar	Toro
	K. M. L. Mathews	Toro
	J. B. Warren	Namalere
	W. A. Kneale	Bunyoro
Agricultural Engineer	D. J. Innes	Namalere
Agricultural Officers (Uganda) and Principal Assistant Agricultural Officers	G. Fennell	Mengo
	S. M. B. Mutagwanya ..	Mpigi
	P. M. Sali	Masaka
	T. K. Otim	Lango
Senior Assistant Agricultural Officers and Senior Field Officers	H. G. N. Semambo	Mengo
	K. M. I. Popiel, M.B.E. ..	Mengo
	S. B. Kikule	Mityana
	S. L. Takirambude	Mukono
	J. M. Sekimpi	Bowa
	Y. E. Onaba	Teso
	A. L. Stephens, M.B.E. ..	Teso

A. Administrative and Extension Services—*continued.*

Title	*Name*	*Station*
Senior Assistant Agricultural Officers and Senior Field Officers—continued	J. G. Wilson	Karamoja
	J. B. O. Baguma	Toro
	Major T. F. Ellis	Ankole
	R. K. Kachope	West Nile
	J. M. Luzinda	Masaka
	P. Sempa	(Mukono, D.F.I.).
	J. N. Kimoimo	On Overseas Course.
Assistant Agricultural Officers ..	R. D. Turner	Buganda
	P. S. Bulera	Mpigi
	Y. Yigga	Mpigi
	G. F. Twyford	Mityana
	T. R. Morgan	Mityana
	D. E. Kawalya	Mityana
	S. L. L. Kyeyune	Mukono
	J. E. Ludlow	Mukono
	R. Morgans	Mukono
	A. H. Masons	(Mukono, D.F.I.).
	M. B. Wright	Bowa
	A. K. Mulera	Masaka
	C. J. Lee	Masaka
	L. Sebuwufu	Masaka
	G. M. Ross	(Masaka, D.F.I.).
	C. M. Kapalaga	(Masaka, D.F.I.).
	B. J. R. Handscombe ..	Mubende
	R. H. Dengate	Mbale
	R. D. Scott	Busoga
	J. M. Edwards	Busoga
	V. P. K. Wamunya	Busoga
	W. M. K. Permain	Busoga
	P. A. Taylor	Busoga
	P. W. Taylor	(Ikulwe, D.F.I.).
	Z. N. Wanyama	Bukedi
	P. B. Wanangwe	Bukedi
	R. G. Benson	Bukedi
	J. P. Bulleid	Bukedi
	R. M. Baker	(Bukedi, D.F.I.).
	E. H. Chapman	Bugisu
	E. B. Sarulo	Bugisu
	J. Walimbwa	Sebei
	V. V. Millett	Bugisu
	A. G.Kibulo	Bugisu
	D. K. Ochon	Bugisu
	C. R. Hullock	Sebei
	J. A. MacMullin	Mbale
	W. P. Beattie	Mbale
	N. O. Z. Sakio	Teso
	D. J. Westwood	Teso
	D. A. Carmichael	Teso
	T. Ward	Teso
	A. S. Mukacha	Teso

A. Administrative and Extension Services—*continued.*

Title	*Name*	*Station*
Assistant Agricultural Officers—continued	F. Bateman	(Karamoja, D.F.I.).
	N. J. P. Hewett	Fort Portal
	A. Kyalimpa	Toro
	I. L. Fisher	Toro
	M. R. Sadler	Toro
	W. J. F. Hill	Toro
	D. A. Trotman	(Kyembogo, D.F.I.).
	D. A. Smith	Toro
	E. B. Rwakaikara	Bunyoro.
	I. M. Bulikiro	Bunyoro.
	M. H. F. Low	Bunyoro.
	H. D. Paterson	Bunyoro.
	M. F. Merchant	Ankole.
	J. M. Thomson	Ankole.
	F. X. Luyombya	Ankole.
	H. McKilligan	(Mbarara, D.F.I.).
	M. R. Quenby	Kigezi.
	P. McConnachie	Kigezi.
	C. J. Howse	(Kigezi, D.F.I.).
	J. Ogwang	Acholi.
	I. L. Lubwa	Acholi.
	G. H. Roberts	Acholi.
	R. A. Irigiei	Acholi.
	J. B. Littlewood	Acholi.
	W. J. McClement	Acholi.
	E. R. Kaahwa	Acholi.
	E. Kemba	Lango.
	A. Donaldson	Lango.
	D. F. Harper	Lango.
	N. Oldacre	Lango.
	D. C. Collin	Lango.
	R. G. J. Revell	West Nile/Madi.
	A. P. Macphie	West Nile/Madi.
	J. Bitonder-Ubusa	West Nile/Madi.
	J. Opio	West Nile/Madi.
	G. W. B. Gowa	(Canada on Scholarship).
	J. J. Oloya	(U.K. Scholarship).
	J. S. Ikara	(On Overseas Course).
	F. X. Lubega	(U.S. on Scholarship).
	J. Obbo	(U.K. on Scholarship).
	M. J. Wegg-Prosser	Bukedi.
	E. Odhuba	Lango.
Senior Assistant Agricultural Officers	J. L. McCumiskey	Namalere.
	A. J. S. Armitage	Namalere.
	H. B. Miller	Namalere.
	G. K. Petrie	Western Region.
Assistant Agricultural Officers ..	T. S. Woodroffe	Namalere.
	J. L. Walker	Namalere.
	R. W. R. Davis	Namalere.
	G. S. Hawkesworth	Namalere.
	N. F. S. Hetherington ..	Namalere.
Mechanical Cultivation Officer ..	E. W. Kalanzi	Namalere.

B. EDUCATION

Title	*Name*	*Station*
Principals	D. C. Todd	Bukalasa Agricultural College.
	J. R. Low	Arapai Agricultural College.
Agricultural Officers	E. S. T. Marshall	Arapai Agricultural College.
	A. D. R. Ker	Arapai Agricultural College.
	Miss J. Wood	Bukalasa Agricultural College.
	T. E. F. Weavind	Bukalasa Agricultural College.
Biologist	R. C. Edworthy	Bukalasa Agricultural College.
Senior Assistant Agricultural Officer	E. Kyagaba	Bukalasa Agricultural College.
Assistant Agricultural Officers	A. W. J. Todd	Bukalasa Agricultural College.
	M. D. Macleod	Bukalasa Agricultural College.
	P. A. J. Julnes	Arapai Agricultural College.
	M. Astbury	Arapai Agricultural College.
	N. G. Tuck	Arapai Agricultural College.
	T. Woodman	Arapai Agricultural College.
	F. P. Smyth	Arapai Agricultural College.
Bursars	A. I. Gafabusa	Bukalasa Agricultural College.
	D. E. K. Muganga	Bukalasa Agricultural College.

C. RESEARCH DIVISION

Principal Research Officer	D. Stephens	Kawanda.
Senior Research Officers	B. Butters	Kawanda.
	W. R. Ingram	Kawanda.
Botanists	C. A. L Leakey	Kawanda.
	D. J. Butt	Kawanda.
	J. W. Dancer	Kawanda.
	S. K. Mukasa	Kawanda.
	A. J. Tribe	Serere.
Soil Survey Officer	J. F. Hanop	Kawanda.
Agronomist	G. E. D. Toley	Kawanda.
Entomologists	J. C. Davis	Serere.
	F. K. Kasule	Serere.
	D. N. McNutt	Mbale.
Chemist	M. N. Court	Serere.
Agricultural Officers	T. H. Stobbs	Serere.
	C. R. Horrell	Serere.
	W. Hadlow	Kawanda.

C. RESEARCH DIVISION—*continued.*

Title	*Name*	*Station*
Agricultural Officers (Uganda) ..	H. D. Mubiru	Kawanda.
	Y. K. Musisi	Kawanda.
	A. G. K. Will	Kawanda.
Senior Assistant Agricultural Officers and Senior Field Officers	T. R. Jones	Kawanda.
	A. Kamya	Bukalasa.
Assistant Agricultural Officers ..	D. M. Patel	Kawanda.
	J. R. Mayne	Kawanda.
	W. G. Foggon	Kawanda.
	S. H. C. Foye	Serere.
	P. W. Newhouse	Serere.
	R. J. Cochrane	Serere.
	R. O. Wheater	Serere.
	S. E. Mabey	Kituza.
	D. E. H. Clegg	Kituza.
	T. R. Odhimbo	(U.K. Scholarship).
	W. P. Beattie	(Bugisu).
Curator, Botanic Gardens ..	Z. K. Kateregga	Entebbe.
Higher Executive Officers ..	P. K. Lukwago	Kawanda.
	J. K. Wagabaza	Serere.
Spectographer	E. W. Hughes	—
Statistical Assistant	L. F. Lobo	(U.K. Scholarship).

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